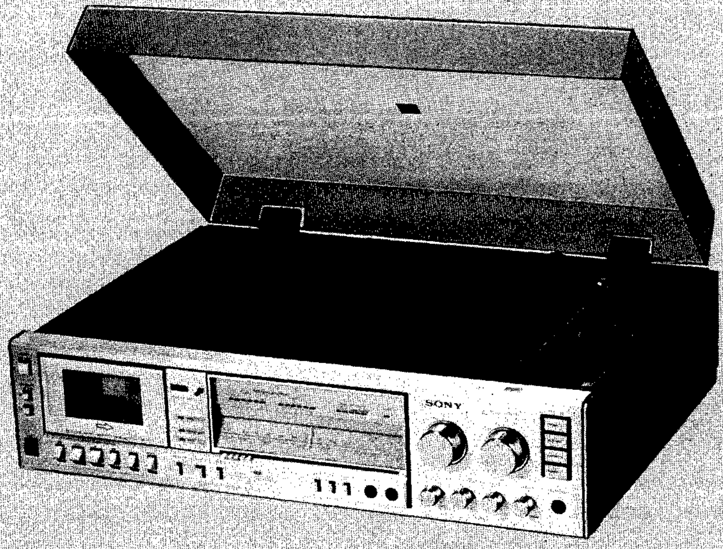
HMK-414

US Model



'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories. Noise reduction system manufactured under license from Dolby Laboratories.

STEREO MUSIC SYSTEM

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8-ohm loads, both channels driven from 90 Hz to 15,000 Hz; rated 16 watts per channel minimum RMS power, with no more than 2% total harmonic distortion.

OTHER SPECIFICATIONS

Amplifier section

Circuit system:	SEPP OCL power amplfier
Inputs:	MIC: for low impedance microphones AUX: 250 mV/47 k ohm
Outputs:	REC OUT: 250 mV/10 k ohm SPEAKER: for 8-ohm speakers HEADPHONES: for headphones of 8 ohms or more
Tone controls:	BASS: ±10 dB at 100 Hz TREBLE: ±10 dB at 10 kHz

Tuner section

Circuit system:	FM stereo, FM/AM superheterodyne tuner with Phase Locked Loop Multiplex decoder for FM
Tuning range:	FM: 87.5 - 108 MHz AM: 530 - 1,605 kHz
Antennas:	FM: 300-ohm balanced terminals equipped with ac line antenna AM: built-in ferrite bar antenna external antenna terminal
Sensitivity:	FM: 2.2 μV (S/N = 30 dB) AM: 48 dB/m (S/N = 20 dB)

Record player section

Turntable:	Sony TTS-81 auto/manual changer 308 mm ($12^{1}/_{8}$ inches) dia.
Speed:	$33^{1}/_{3}$, 45 rpm
Cartridge:	VL-38GSA (magnetic type)
Stylus:	ND-138G (conical, 0.6 mil diamond) 2.5 g±0.5 g (2.5 g recommended)

— Continued on page 2 —

Tape Transport Mechanism Type	MDS-18S4

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY®

SERVICE MANUAL

454l

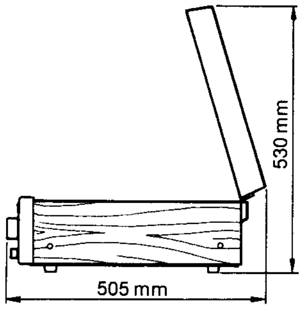
Cassette deck section

Recording system: 4-track 2-channel stereo
Frequency response: DOLBY NR OFF
- With TYPE IV cassette (Sony METALLIC)
  30 - 18,000 Hz
  50 - 16,000 Hz (±3 dB)
- With TYPE I cassette (Sony HFX)
  30 - 16,000 Hz
  50 - 14,000 Hz (±3 dB)

Signal-to-noise ratio: DOLBY NR OFF
With TYPE IV cassette (Sony METALLIC)
58 dB at peak level
DOLBY NR ON
Improved by 5 dB at 1 kHz, 10 dB
above 5 kHz

General

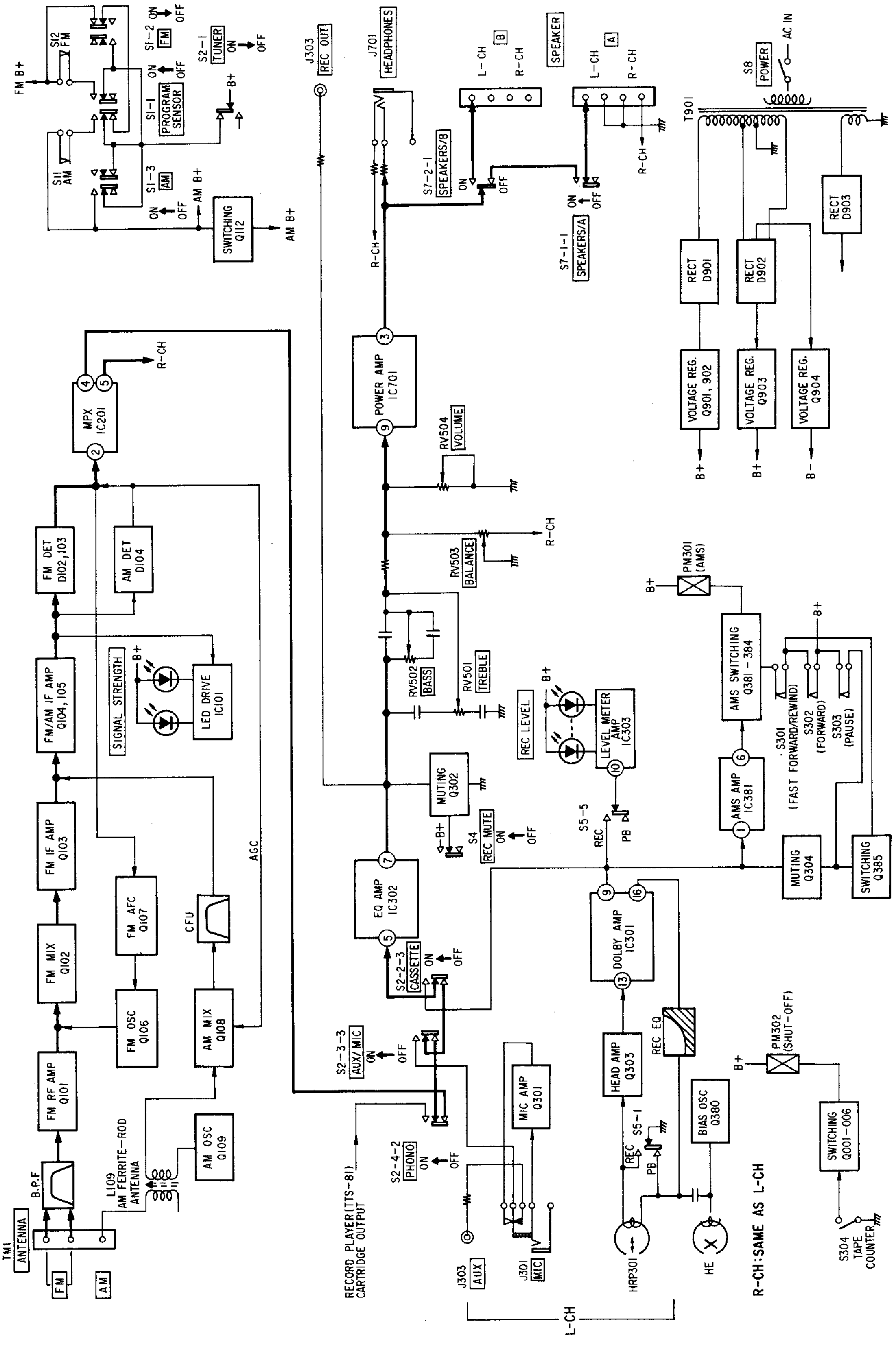
Power requirements: 120 V ac, 60 Hz
Power consumption: 58 W
Dimensions: Approx. 595 × 205 × 460 mm (w/h/d)
($23\frac{1}{2}$ × $8\frac{1}{8}$ × $18\frac{1}{8}$ inches)
incl. projecting parts and controls
Approx. 595 × 530 × 505 mm (w/h/d)
($23\frac{1}{2}$ × $20\frac{7}{8}$ × $19\frac{7}{8}$ inches)



with the dust cover fully opened
Weight: Approx. 10,8 kg (23 lb 13 oz) net
Approx. 12,2 kg (26 lb 15 oz) in shipping
carton without speakers

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM


TM1 ANTENNA
FM
AM
B.P.F
L109 AM FERRITE-ROD ANTENNA
FM RF AMP Q101
FM MIX Q102
FM OSC Q106
FM AFC Q107
FM IF AMP Q103
FM/AM IF AMP Q104, 105
FM DET D102, 103
AM DET D104
AM OSC Q109
AM MIX Q108
CFU
AGC
SIGNAL STRENGTH
LED DRIVE IC101
MPX IC201
R-CH
FM B+
S12 FM
S11 AM
S1-1 PROGRAM SENSOR
S1-2 FM
S1-3 AM
S2-1 TUNER
ON
OFF
B+
AM B+
SWITCHING Q112
J303 REC OUT
J701 HEADPHONES
SPEAKER
L-CH
R-CH
A
B
S7-2-1 SPEAKERS/B
S7-1-1 SPEAKERS/A
POWER AMP IC701
RV504 VOLUME
RV503 BALANCE
RV502 BASS
RV501 TREBLE
MUTING Q302
S4 REC MUTE
EQ AMP IC302
S2-2-3 CASSETTE
S2-3-3 AUX/MIC
S2-4-2 PHONO
RECORD PLAYER (TTS-81) CARTRIDGE OUTPUT
J303 AUX
J301 MIC
MIC AMP Q301
L-CH
REC LEVEL
LEVEL METER AMP IC303
S5-5
REC
PB
DOLBY AMP IC301
HEAD AMP Q303
REC EQ
S5-1
BIAS OSC Q380
HRP301
HE
AMS AMP IC381
AMS SWITCHING Q381-384
PM301 (AMS)
S301 (FAST FORWARD/REWIND)
S302 (FORWARD)
S303 (PAUSE)
MUTING Q304
SWITCHING Q385
PM302 (SHUT-OFF)
SWITCHING Q001-006
S304 TAPE COUNTER
AC IN
S8 POWER
T901
RECT D901
RECT D902
RECT D903
VOLTAGE REG. Q901, 902
VOLTAGE REG. Q903
VOLTAGE REG. Q904
B+
B-

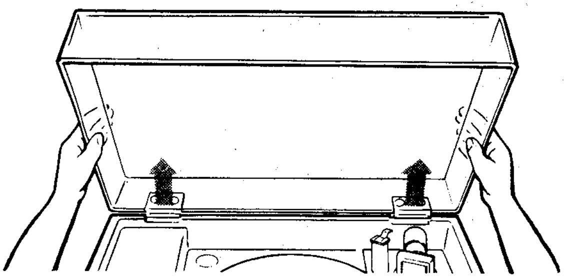
R-CH: SAME AS L-CH

SECTION 2
DISASSEMBLY

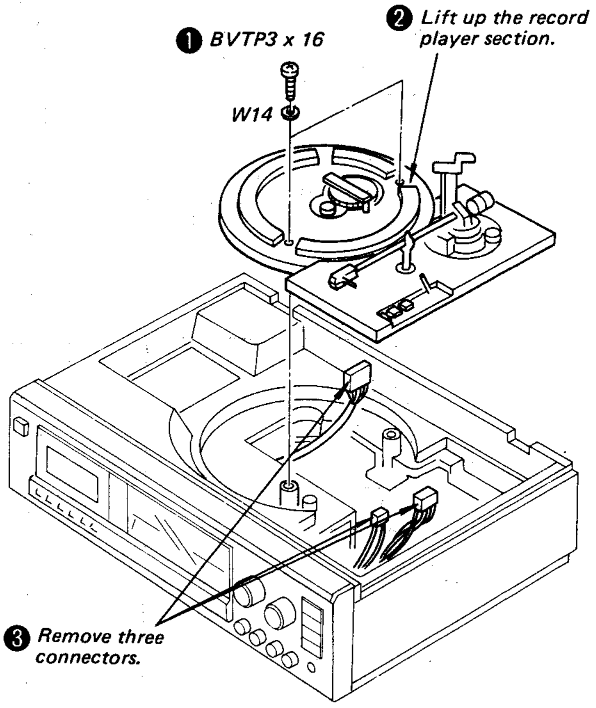
Note: Follow the disassembly procedure in the numerical order given.

DUST COVER

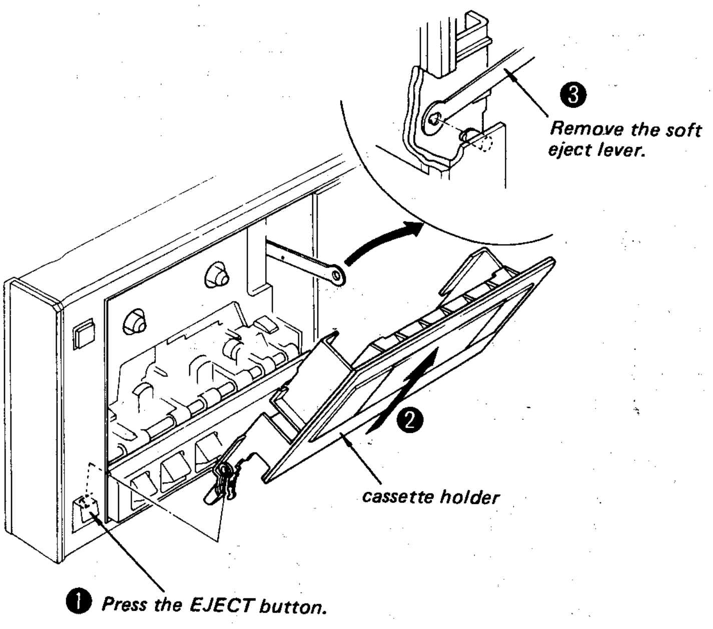
- Open the dust cover fully and slide it upward while holding it with both hands.



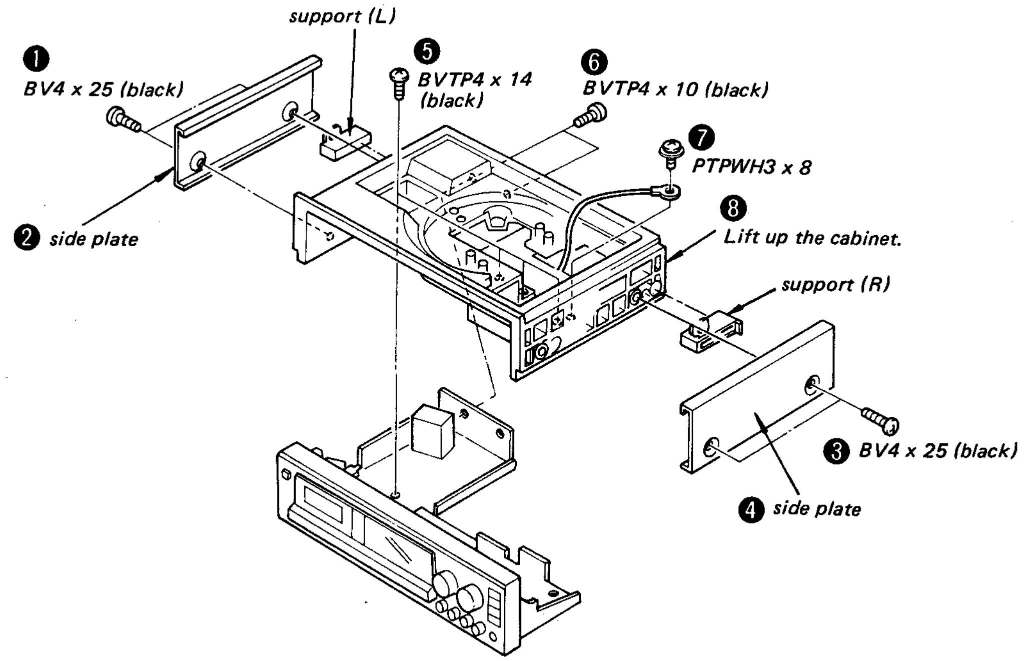
RECORD PLAYER SECTION


❶ BVTP3 x 16
W14
❷ Lift up the record player section.
❸ Remove three connectors.

CASSETTE HOLDER

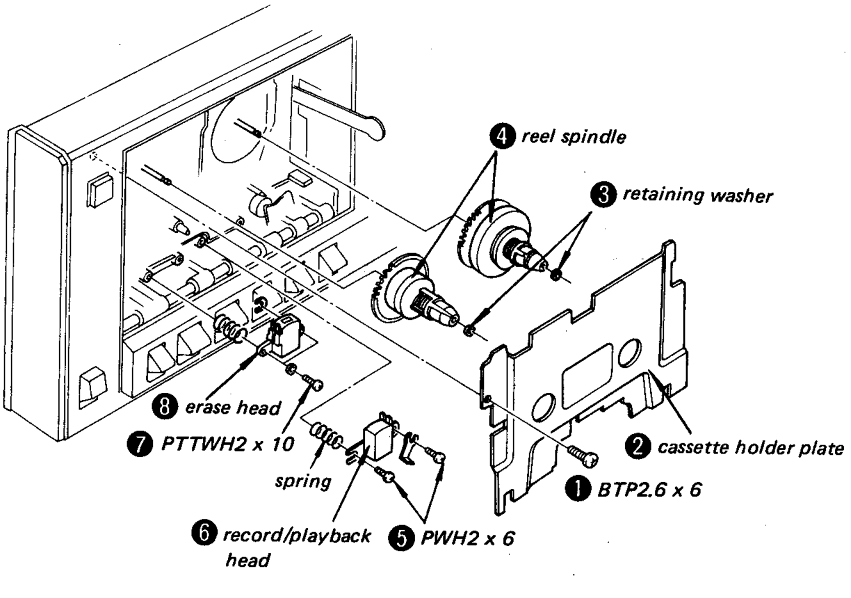

❸ Remove the soft eject lever.
❷
cassette holder
❶ Press the EJECT button.

CABINET


support (L)
❶ BV4 x 25 (black)
❺ BVTP4 x 14 (black)
❻ BVTP4 x 10 (black)
❼ PTPWH3 x 8
❽ Lift up the cabinet.
❷ side plate
support (R)
❸ BV4 x 25 (black)
❹ side plate

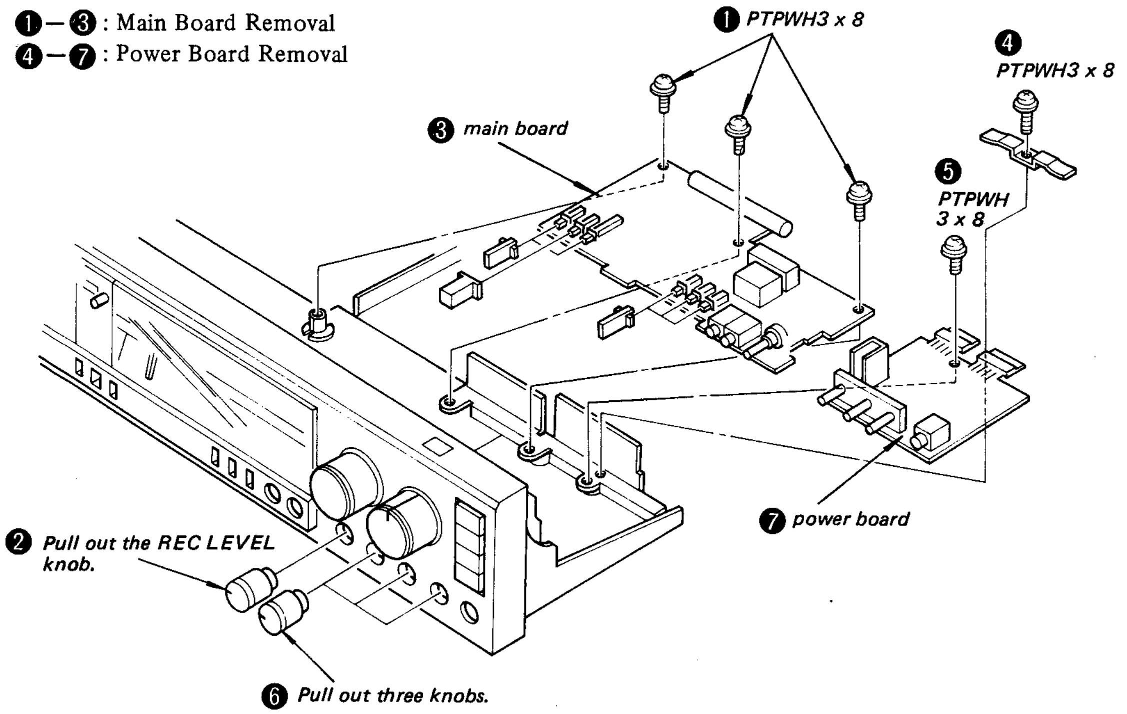
REEL SPINDLE and HEAD

❶ – ❹ : Reel Spindle Removal.
❶ , ❷ , ❺ , ❻ : Record/playback Head Removal
❶ , ❷ , ❼ , ❽ : Erase Head Removal


❹ reel spindle
❸ retaining washer
❽ erase head
❼ PTTWH2 x 10
spring
❷ cassette holder plate
❶ BTP2.6 x 6
❻ record/playback head
❺ PWH2 x 6

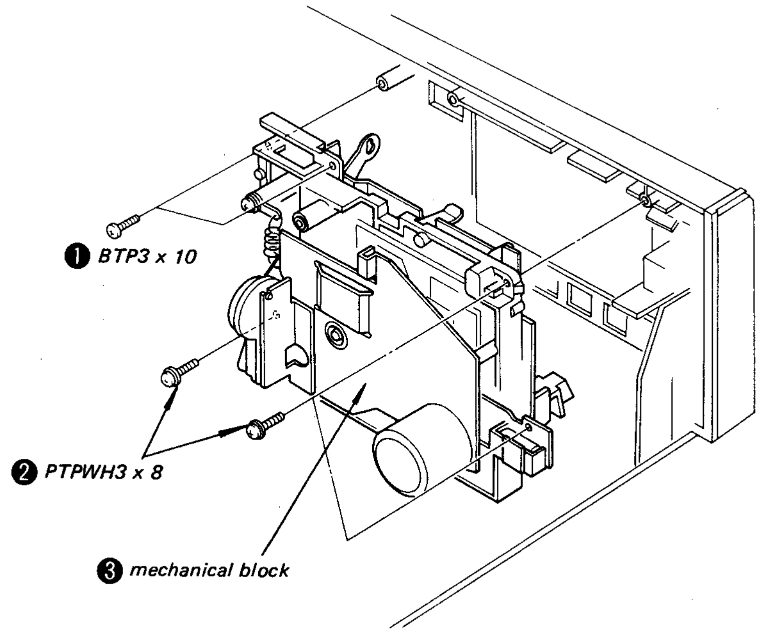
MAIN BOARD and POWER BOARD

❶—❸ : Main Board Removal
❹—❼ : Power Board Removal


❶ PTPWH3 x 8
❹ PTPWH3 x 8
❸ main board
❺ PTPWH 3 x 8
❼ power board
❷ Pull out the REC LEVEL knob.
❻ Pull out three knobs.

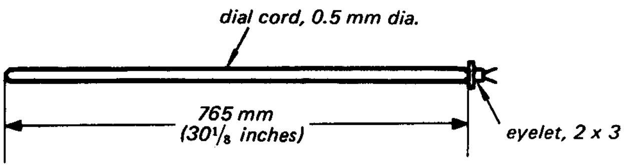
DIAL CORD STRINGING
- See page 7.

MECHANICAL BLOCK


❶ BTP3 x 10
❷ PTPWH3 x 8
❸ mechanical block

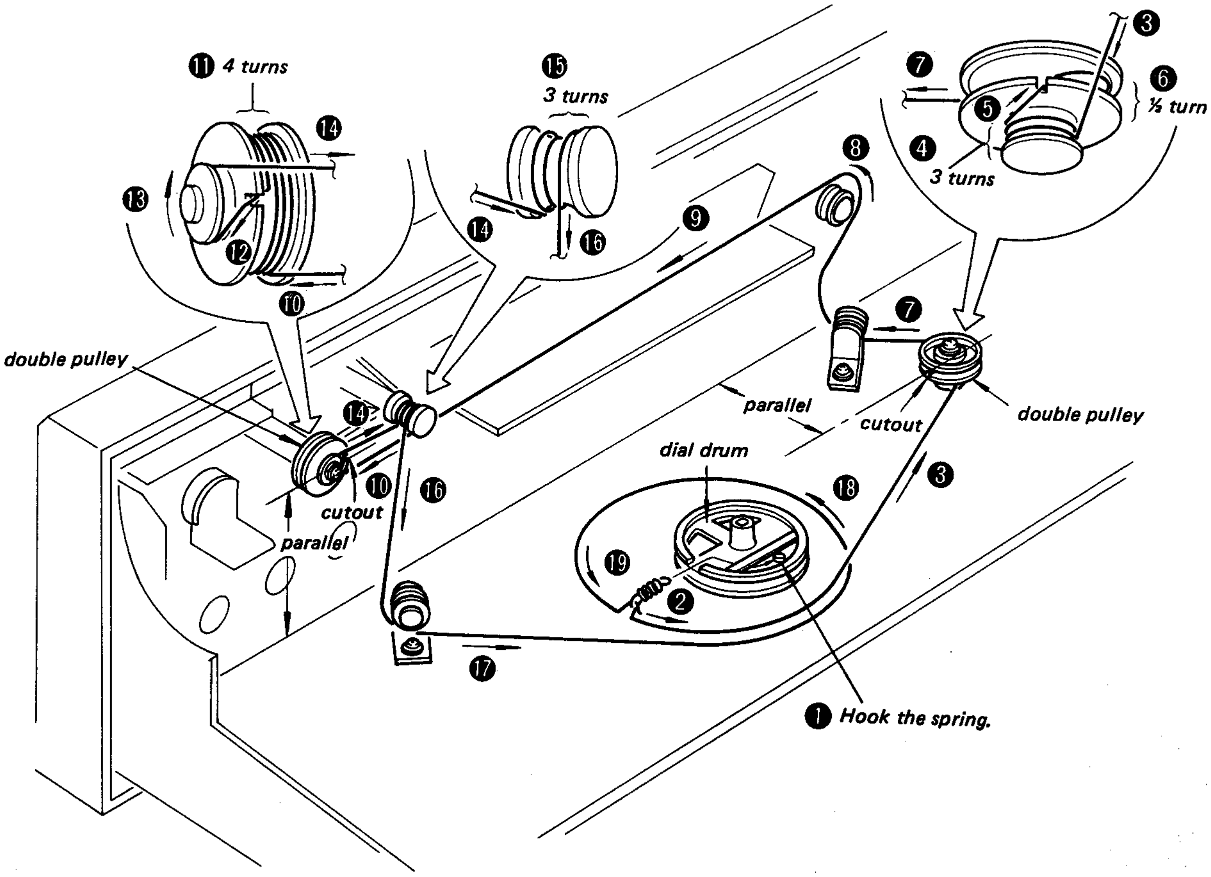
• DIAL CORD STRINGING

1) Dial Cord Preparation


dial cord, 0.5 mm dia.
765 mm
(30⅛ inches)
eyelet, 2 x 3

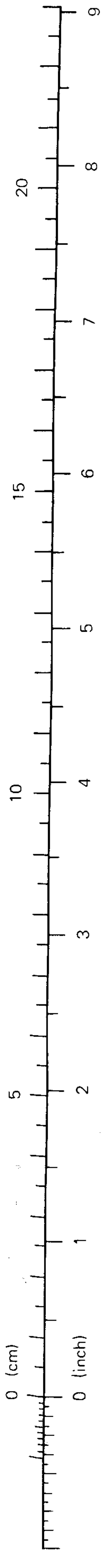
2) Dial Cord Stringing

Install the dial drum and turn it fully counter-clockwise.
Set two double pulleys as shown below.
String the dial cord in the numerical order given.


⑪ 4 turns
⑭
⑬
⑫
⑩
⑮
3 turns
⑭
⑯
⑦
⑤
③
⑥
½ turn
④
3 turns
⑧
⑨
⑦
double pulley
⑭
⑩
cutout
parallel
⑯
parallel
cutout
double pulley
dial drum
⑱
③
⑲
②
⑰
① Hook the spring.

3) Dial Pointer Installation

1. Receive a broadcasting station signal and set the dial pointer on the dial scale.
2. Apply a drop of contact cement to the dial pointer.


0 (cm)
5
10
15
20
0 (inch)
1
2
3
4
5
6
7
8
9

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

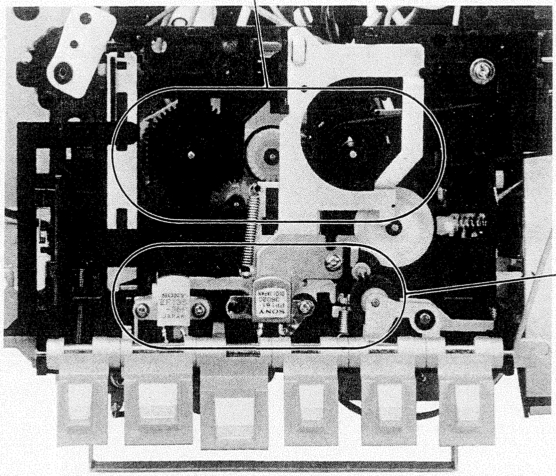
1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

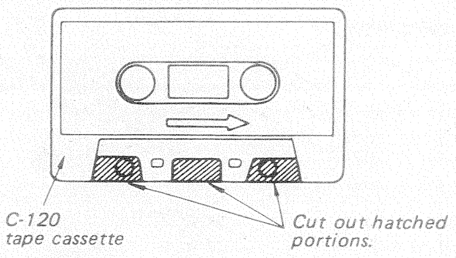
- **Torque/Tape Tension Measurement**

Torque	Torque meter	Meter reading
Forward	CQ-102C	22.5–52.5 g · cm (0.32–0.72 oz · inch)
Back Tension	CQ-102C	2–5 g · cm (0.028–0.069 oz · inch)
Fast Forward and Rewind	CQ-201B	60–100 g · cm (0.84–1.39 oz · inch)
Tape Tension	CQ-403	more than 130 g (more than 4.58 oz)

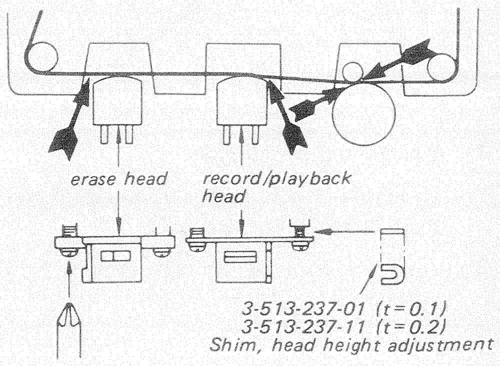


Head Height Adjustment

1. Prepare an adjustment cassette as shown below.


C-120
tape cassette
Cut out hatched
portions.

2. In record mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at arrowed portions.

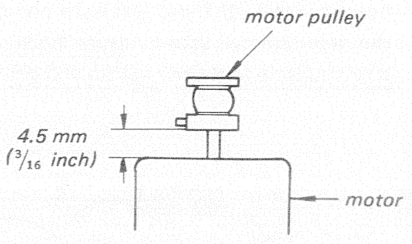

erase head
record/playback
head
3-513-237-01 (t=0.1)
3-513-237-11 (t=0.2)
Shim, head height adjustment

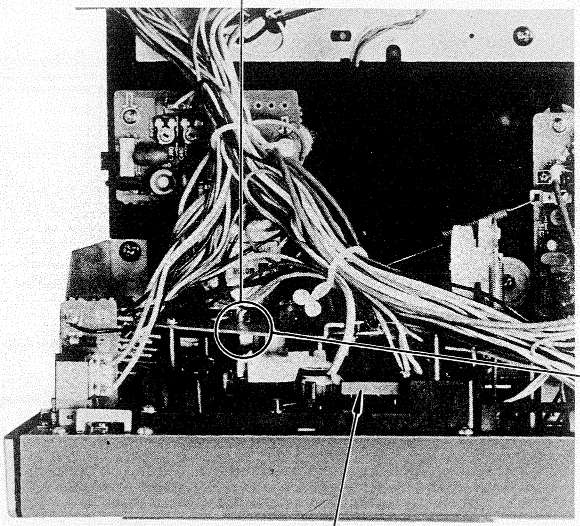
Motor Pulley Height Adjustment

Perform this adjustment, after replacing the motor pulley or the flywheel.

Procedure:

1. Keep the set horizontal.
2. Adjust the motor pulley height so that the drive belt is straight without a twist.

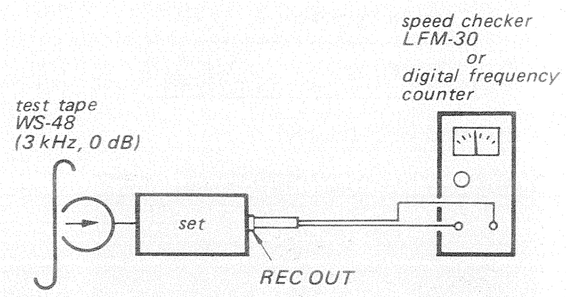

motor pulley
4.5 mm
(3/16 inch)
motor


mechanical block

Tape Speed Adjustment

Procedure:

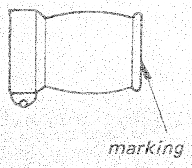
Mode: playback


speed checker
LFM-30
or
digital frequency
counter
test tape
WS-48
(3 kHz, 0 dB)
set
REC OUT

Specification:

Speed checker	Digital frequency counter
−2.5 to +3 %	2,925 Hz – 3,090 Hz

X-3564-301-☐



Motor pulley Part No.	Marking	Tape speed change
-1	A	−2.5 %
-2	B	−1.5 %
-3	C	standard
-4	D	+1.5 %
-5	E	+2.5 %

Caution for Motor Pulley Replacement

When replacing the motor pulley, perform the motor pulley height adjustment.

Caution for Motor Replacement

When replacing the motor, order the motor and the pulley together, because the motor pulley of this set is difficult to be separated from the motor. (The motor pulley for the service can be fixed with the screw.)

3-2. ELECTRICAL ADJUSTMENTS

CASSETTE DECK SECTION

Note: The adjustment should be performed in the numerical order given.
The adjustments should be performed for both L-CH and R-CH.

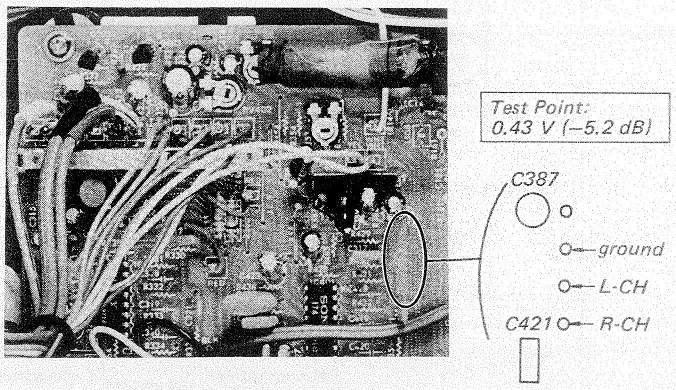
- Standard Record:

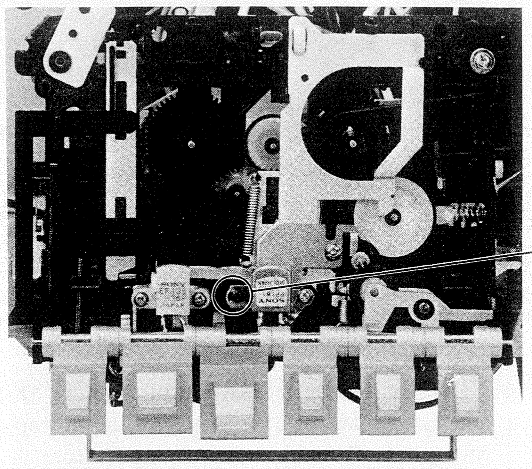
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

Standard Input Level:

	AUX
source impedance	10 kΩ
input level	0.25 V (−10 dB)

Standard Output Level:

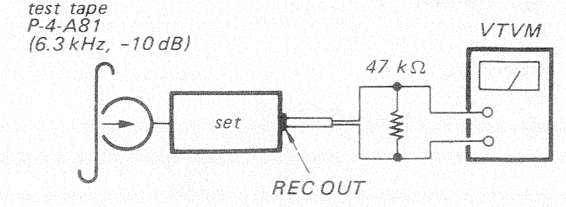

Test Point:
0.43 V (−5.2 dB)
C387
ground
L-CH
C421
R-CH



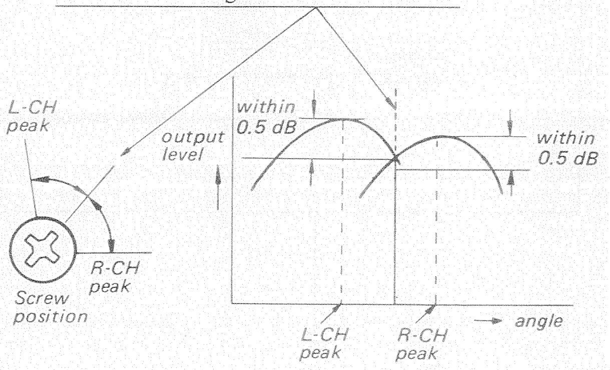
Record/playback Head Azimuth Adjustment

Procedure:

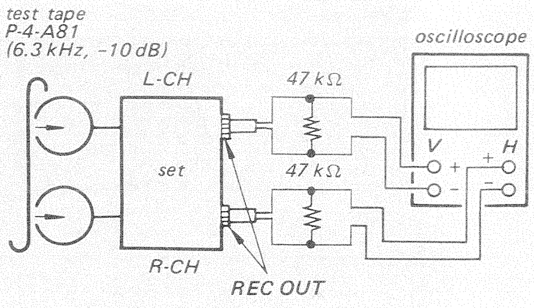
1. Mode: playback

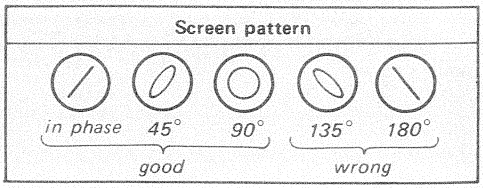

test tape
P-4-A81
(6.3 kHz, −10 dB)
VTVM
47 kΩ
set
REC OUT

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.



3. Phase Check
Mode: playback


test tape
P-4-A81
(6.3 kHz, −10 dB)
oscilloscope
L-CH
47 kΩ
set
47 kΩ
V
H
+
−
R-CH
REC OUT

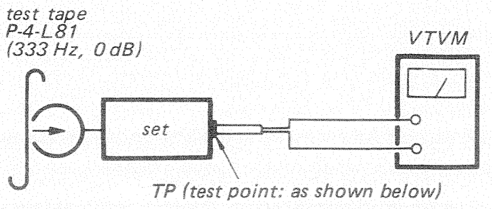

Screen pattern
in phase
45°
90°
135°
180°
good
wrong

Playback Level Adjustment

Setting:

TAPE switch: TYPE I

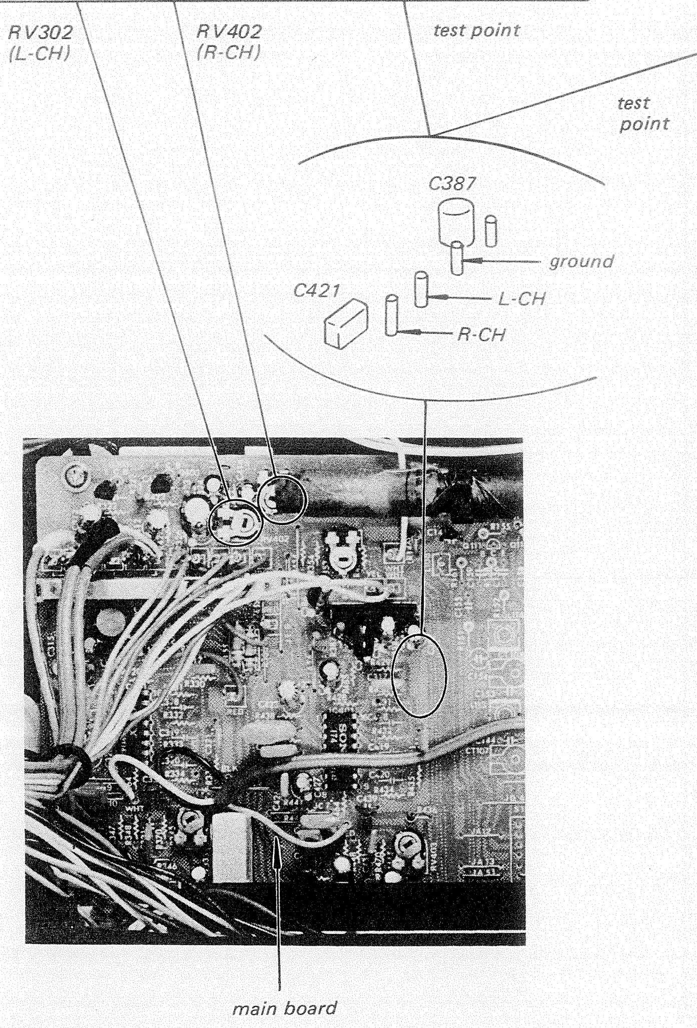
Procedure:


test tape
P-4-L81
(333 Hz, 0 dB)
VTVM
set
TP (test point: as shown below)

Specification:

0.53 to 0.55 V (−3.4 to −3 dB)

Check that output level does not change in playback mode while changing the mode from playback to stop several times.


RV302
(L-CH)
RV402
(R-CH)
test point
test
point
C387
ground
C421
L-CH
R-CH
main board

Record Bias Adjustment

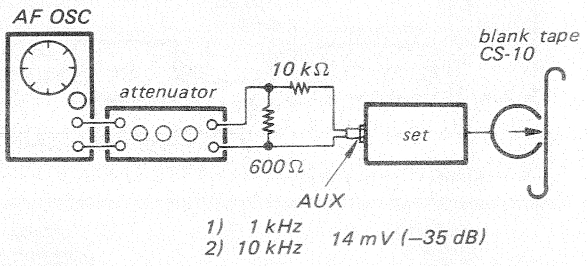
Setting:

TAPE switch: TYPE I

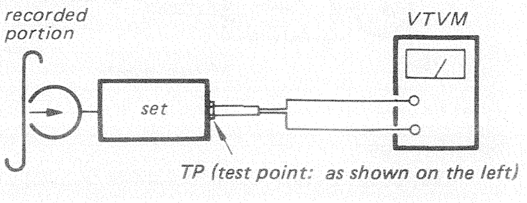
REC LEVEL control: standard record (See page 10.)

Procedure:

1. Mode: record


AF OSC
attenuator
10 kΩ
600 Ω
AUX
set
blank tape
CS-10
1) 1 kHz
2) 10 kHz
14 mV (−35 dB)

2. Mode: playback

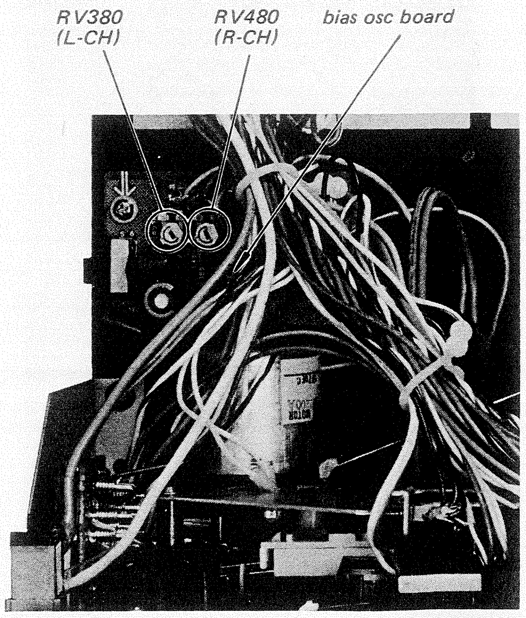

recorded
portion
VTVM
set
TP (test point: as shown on the left)

Adjust RV380 (L-CH) and RV480 (R-CH) so that the test point level is specified values.

Specification:

- Test point level: 24 mV (−30.2 dB)
- Level difference between channels: Less than 0.5 dB

Adjustment Location:


RV380
(L-CH)
RV480
(R-CH)
bias osc board

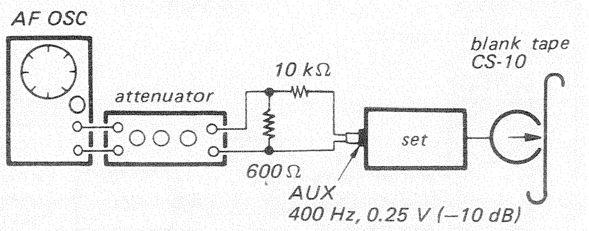
Record Level Adjustment

Setting:

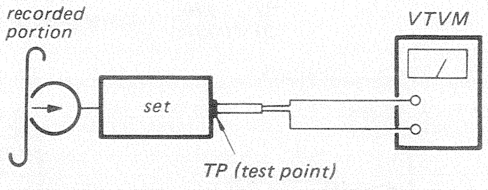
REC LEVEL control: standard record (See page 10.)

Procedure:

1. Mode: record


AF OSC
attenuator
10 kΩ
600 Ω
set
blank tape
CS-10
AUX
400 Hz, 0.25 V (−10 dB)

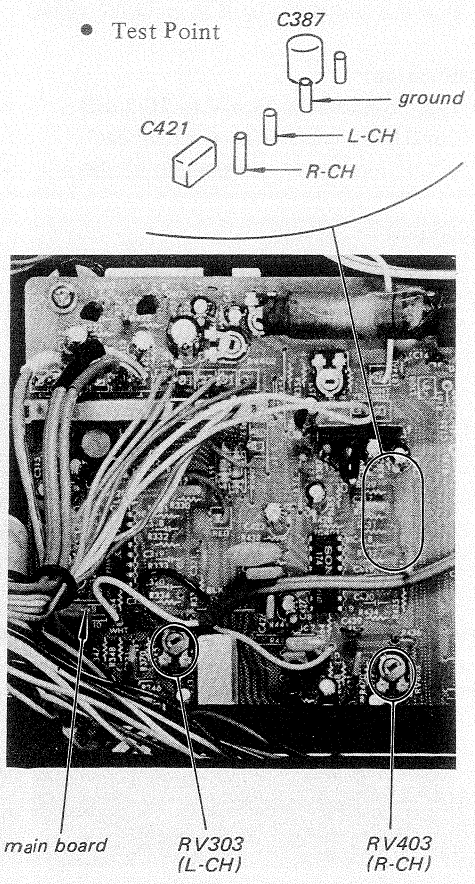
2. Mode: playback


recorded portion
set
VTVM
TP (test point)

Specification:

Test Point Level: 0.42 to 0.44 V (−5.4 to −5 dB)

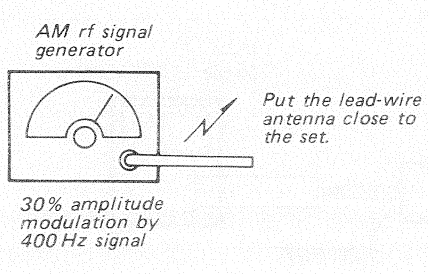
- Test Point

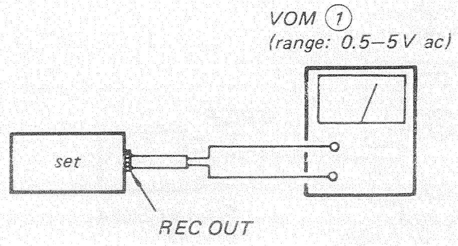

C387
ground
C421
L-CH
R-CH
main board
RV303
(L-CH)
RV403
(R-CH)

AM SECTION

Setting:

FUNCTION switch: TUNER
Band Select switch: AM

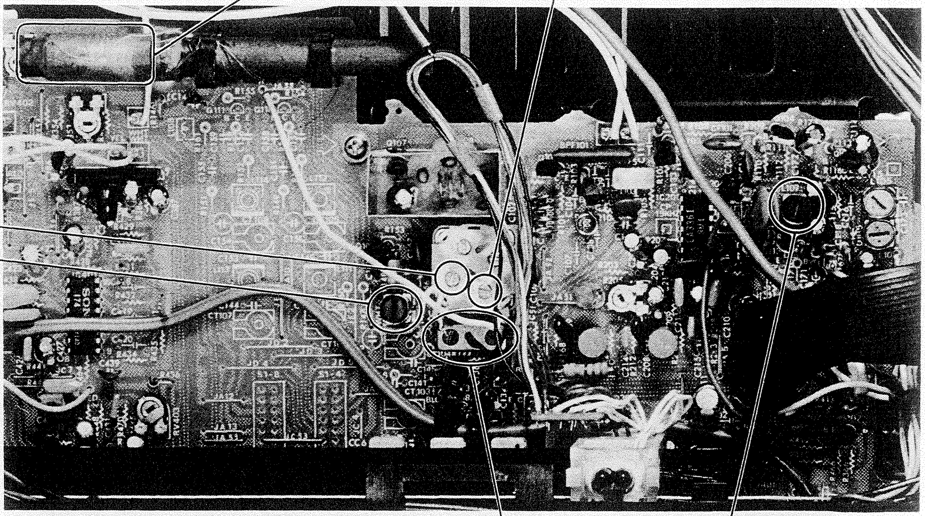

AM rf signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400 Hz signal


VOM ①
(range: 0.5–5 V ac)
set
REC OUT

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
600 kHz	1,400 kHz
L109	CT103

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
1,680 kHz	CT104
520 kHz	L110

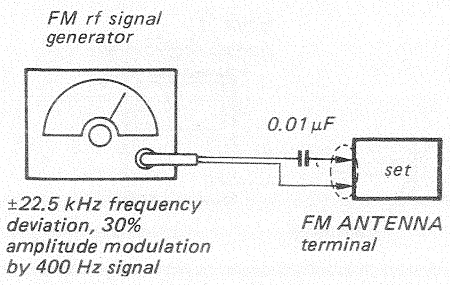


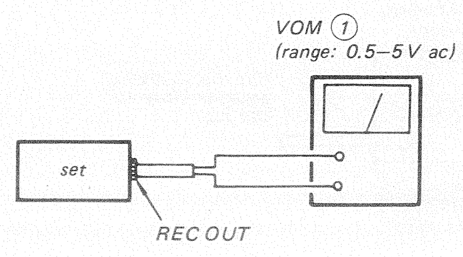
CFU101	L107
455 kHz	
Adjust for a maximum reading on VOM ①.	
AM IF ALIGNMENT	

FM SECTION

Setting:

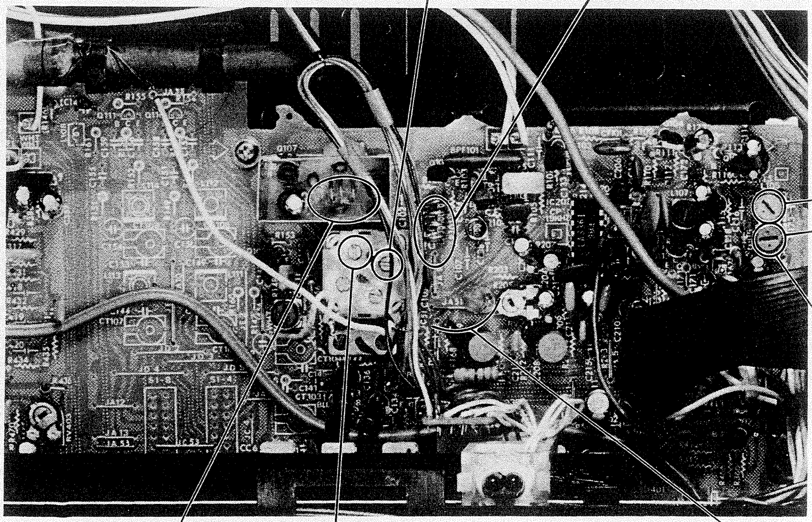
FUNCTION switch: TUNER
Band Select switch: FM


FM rf signal generator
0.01 μF
set
±22.5 kHz frequency deviation, 30% amplitude modulation by 400 Hz signal
FM ANTENNA terminal


VOM ①
(range: 0.5–5 V ac)
set
REC OUT

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

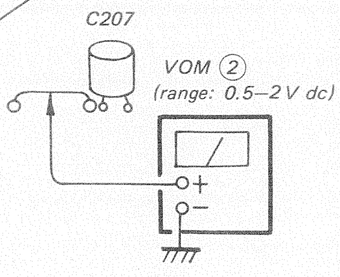
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
108.5 MHz	87.2 MHz
CT101	L101



FM IF ADJUSTMENT 1	
Adjust for a maximum reading on VOM ①.	
L105	10.7 MHz
L106	

FM IF ALIGNMENT 2 (10.7 MHz with no modulation)
Adjust for 0 V reading on VOM ②.
L106

L104	CT102
87.2 MHz	108.5 MHz
Adjust for a maximum reading on VOM ①.	
FM FREQUENCY COVERAGE ADJUSTMENT	


C207
VOM ②
(range: 0.5–2 V dc)
+
−

19 kHz Adjustment

Setting:

FUNCTION switch: TUNER
Band Select switch: FM

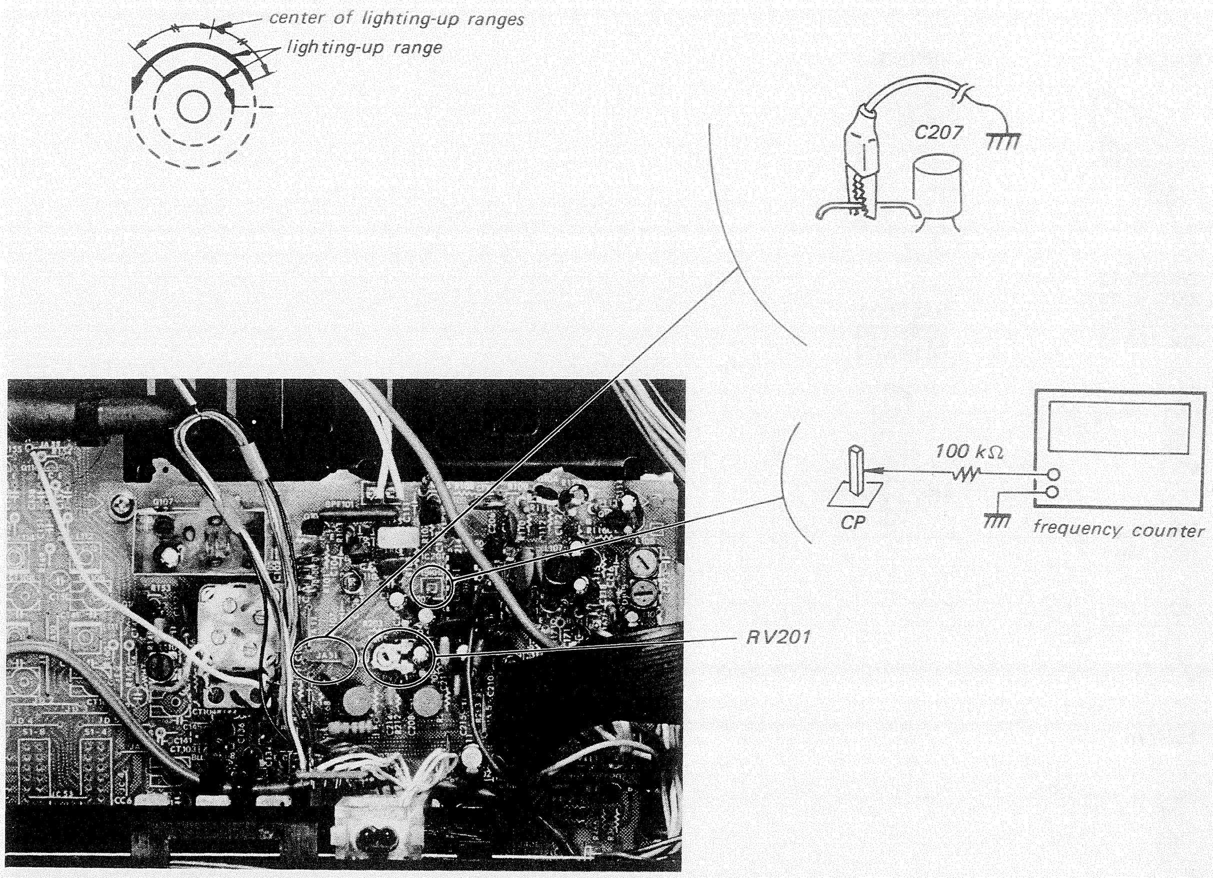
Procedure:

A) Regular Method

1. Short-circuit the discriminator output and ground pattern as shown below.
2. Connect the frequency counter to the check pin.
3. Adjust RV201 for 19 kHz ± 30 Hz on the frequency counter.

B) Simple Method

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RV201 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RV201 at the center of the lighting-up range of both turns as shown below.

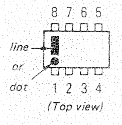

center of lighting-up ranges
lighting-up range

C207
100 kΩ
CP
frequency counter
RV201

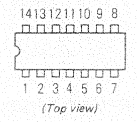
SECTION 4
DIAGRAMS

4-1. SEMICONDUCTOR LEADS LAYOUT

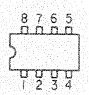
TL489CP


8 7 6 5
line
or
dot
1 2 3 4
(Top view)

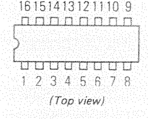
LA3361


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

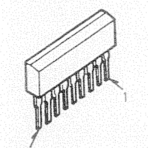
μPC4558C


8 7 6 5
1 2 3 4
(Top view)

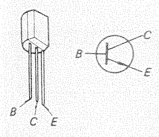
CX174
IR2E01


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

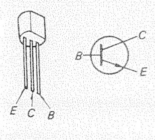
BA335



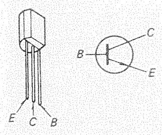
2SC710-12
2SC710-13
2SC710-14
2SC710-15



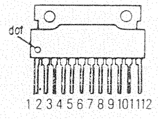
2SC1362
2SC1364



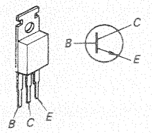
2SD774



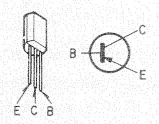
HA1397


dot
1 2 3 4 5 6 7 8 9 10 11 12

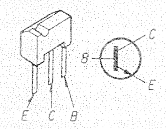
2SD880



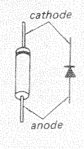
2SB740



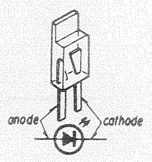
2SD637R



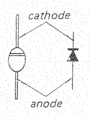
1S1555
1T22
1T22AM
10E2


cathode
anode

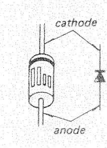
GL9PR21
GL9HY21
GL9NG21


anode
cathode

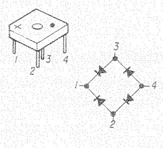
U05G


cathode
anode

EQB01-22
EQB01-10


cathode
anode

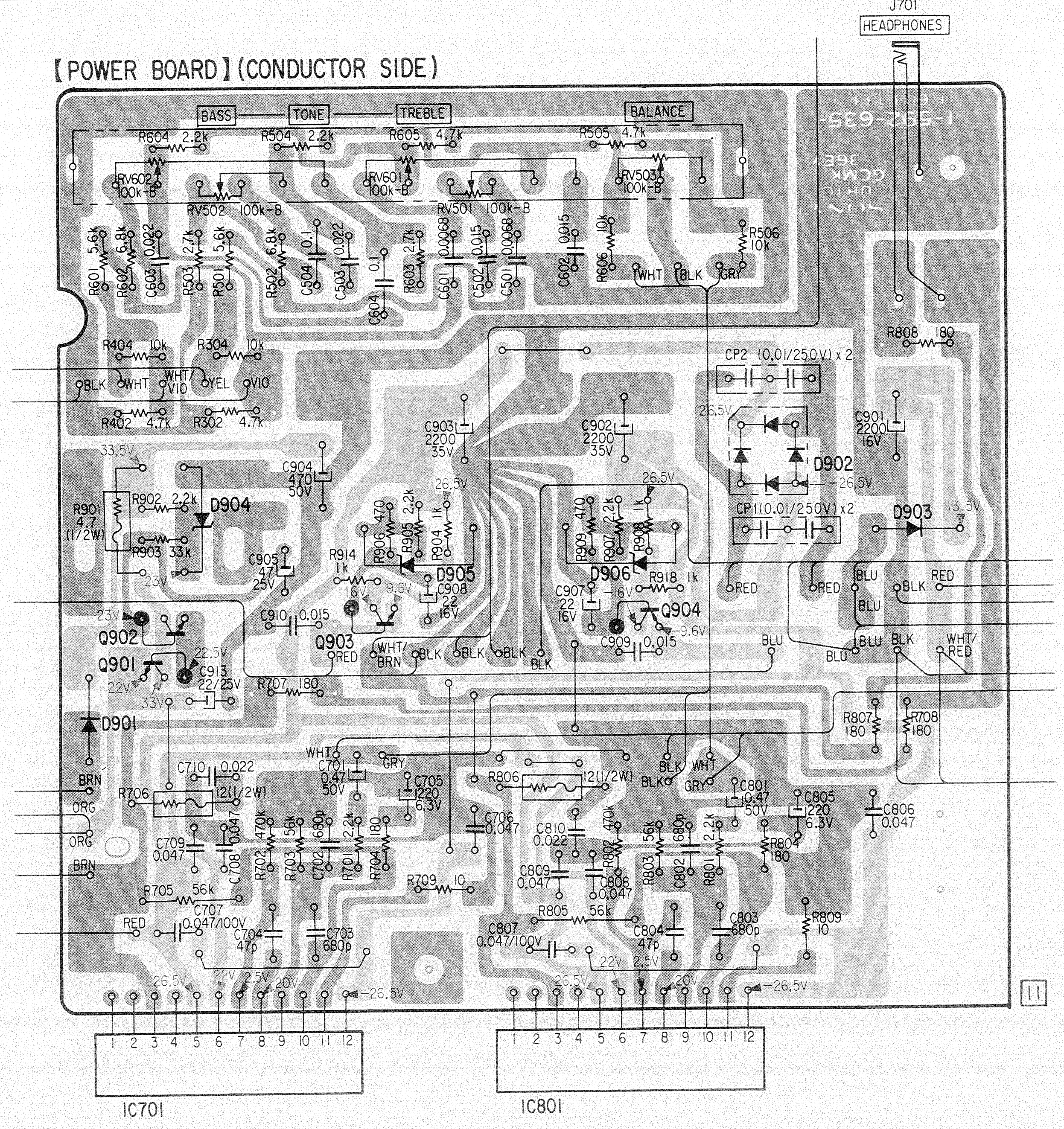
S2VB20



4-2. MOUNTING DIAGRAM – Power Board –

– Conductor Side –

	A	B	C	D
Q·IC	902 901 IC701	903	904 IC801	
D	904 901	905	906 902	903



J701
HEADPHONES
【POWER BOARD】(CONDUCTOR SIDE)
BASS
TONE
TREBLE
BALANCE
RV602 100k-B
RV502 100k-B
RV601 100k-B
RV501 100k-B
RV503 100k-B
CP2 (0.01/250V) x 2
CP1 (0.01/250V) x 2
D902
D903
D904
D905
D906
D901
Q901
Q902
Q903
Q904
C903 2200 35V
C902 2200 35V
C901 2200 16V
R901 4.7 (1/2W)
R706 12 (1/2W)
R806 12 (1/2W)
1-592-635-
IC701
IC801

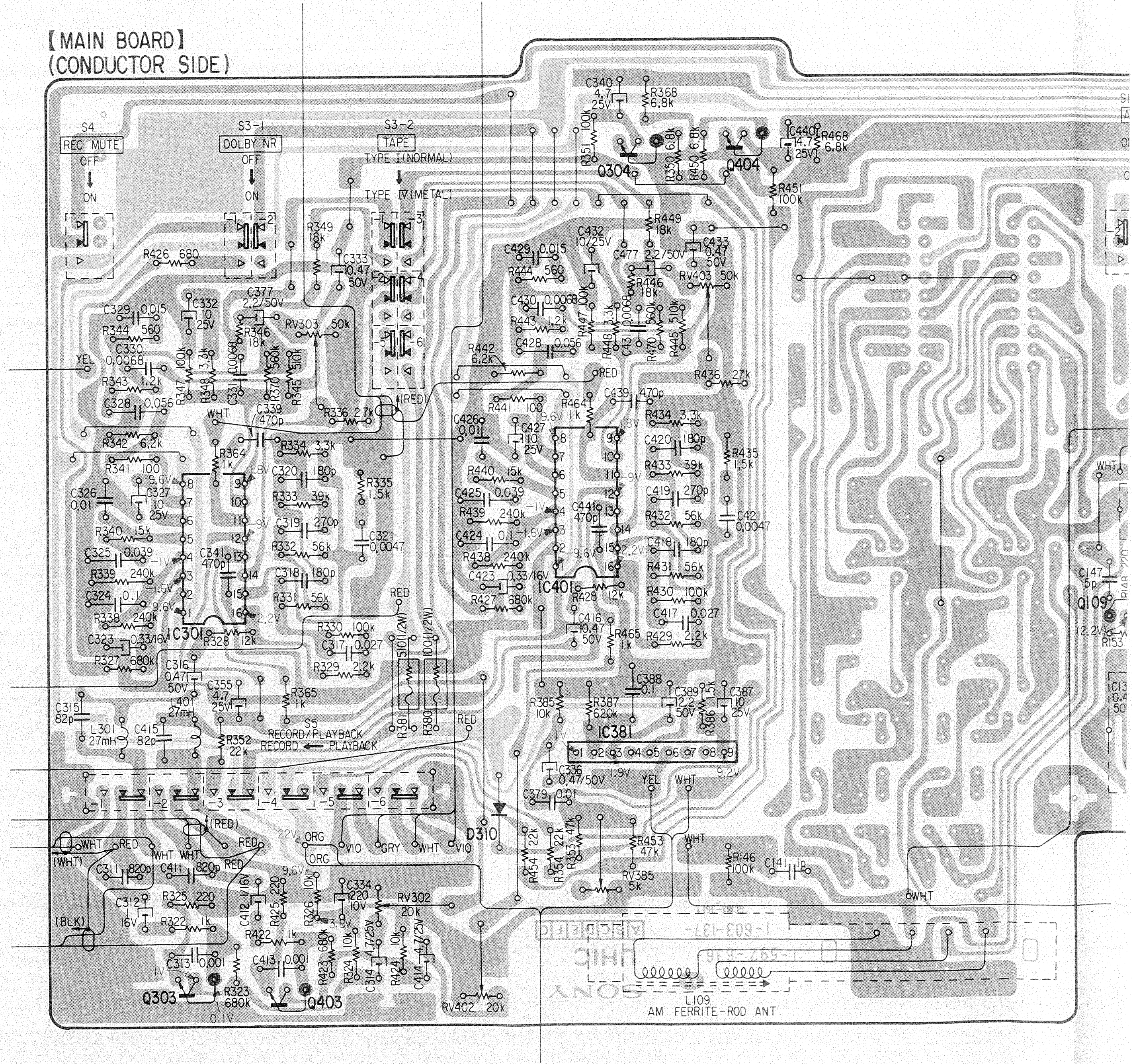
Note:

- ● ▨ : B + pattern
- ● ▨ : B- pattern
- ● : fusible resistor.

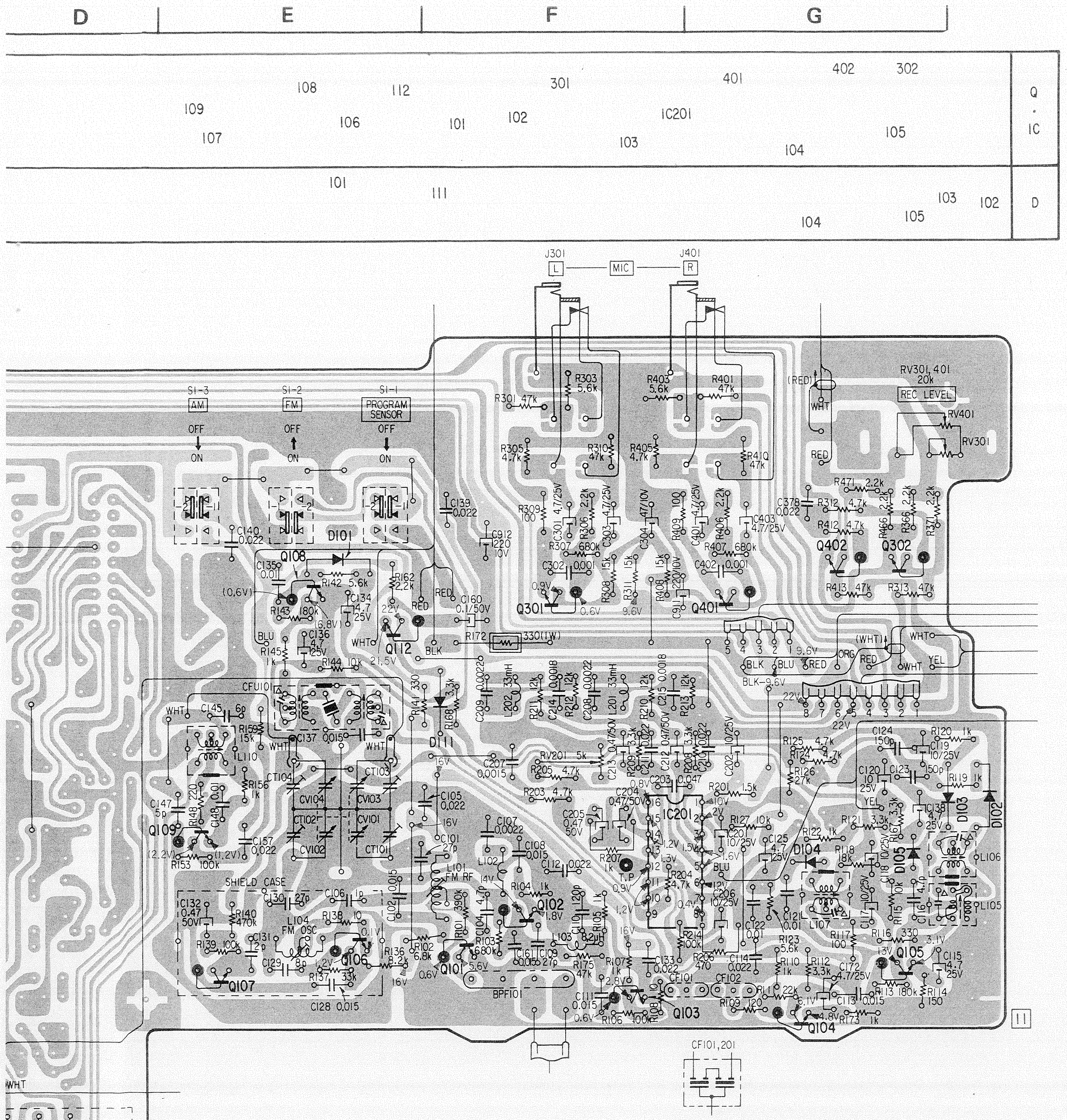
4-3. MOUNTING DIAGRAM – Main Board –

– Conductor Side –

	A	B	C	D
Q·IC	IC301 303	403	304 404 IC401 IC381	
D		310		



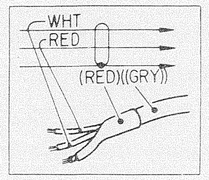
【MAIN BOARD】(CONDUCTOR SIDE)
S4 REC MUTE OFF ON
S3-1 DOLBY NR OFF ON
S3-2 TAPE TYPE I (NORMAL) TYPE IV (METAL)
RV303 50k
RV403 50k
RV302 20k
RV402 20k
IC301
IC401
IC381
Q303
Q304
Q403
Q404
D310
S5 RECORD/PLAYBACK RECORD PLAYBACK
L301 27mH
L401 27mH
L109 AM FERRITE-ROD ANT
1-603-137-


D
E
F
G
Q
IC
D
109
107
108
106
112
101
102
301
103
IC201
401
104
402
302
105
101
111
104
105
103
102
J301
J401
L
MIC
R
S1-3 AM
S1-2 FM
S1-1 PROGRAM SENSOR
OFF
ON
RV301,401 20k
REC LEVEL
RV401
RV301
Q301
Q401
Q402
Q302
Q108
Q112
D101
CFU101
Q109
Q107
Q106
Q101
Q102
Q103
Q104
Q105
IC201
SHIELD CASE
FM OSC
FM RF
BPF101
CF101,201
D102
D103
D104
D105
L101
L102
L103
L104
L105
L106
L107
WHT
RED
BLK
BLU
YEL
ORG

Note:

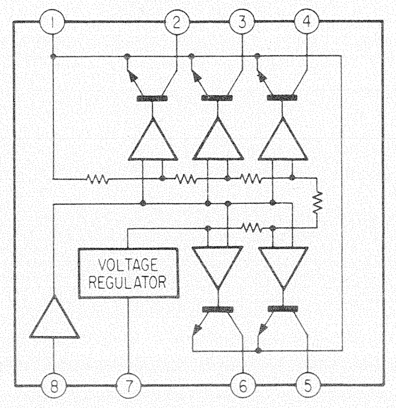
- [ ]⊢ : indicates side identified with part number.
- ░ : B+ pattern
- ▓ : B – pattern
- : fusible resistor.

- Color code of sleeving over the end of the jacket.

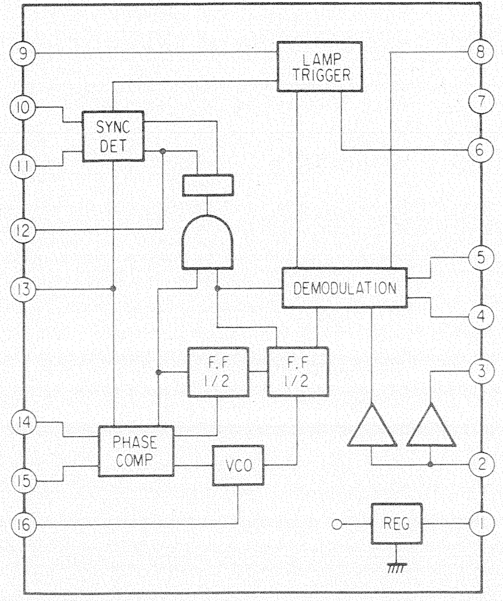

WHT
RED
(RED)(GRY)

4-4. BLOCK DIAGRAM of IC

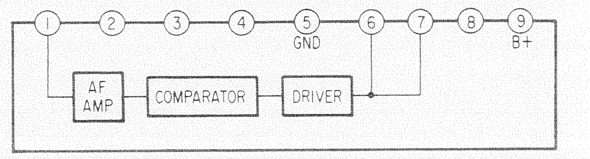
IC101 TL489C


VOLTAGE REGULATOR
1
2
3
4
5
6
7
8

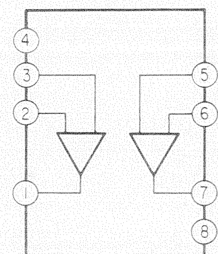
IC201 LA3361


LAMP TRIGGER
SYNC DET
DEMODULATION
F.F 1/2
F.F 1/2
PHASE COMP
VCO
REG

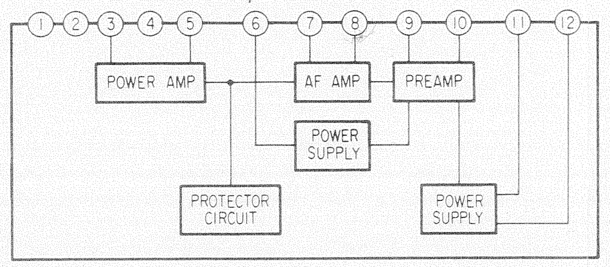
IC381 BA335


GND
B+
AF AMP
COMPARATOR
DRIVER

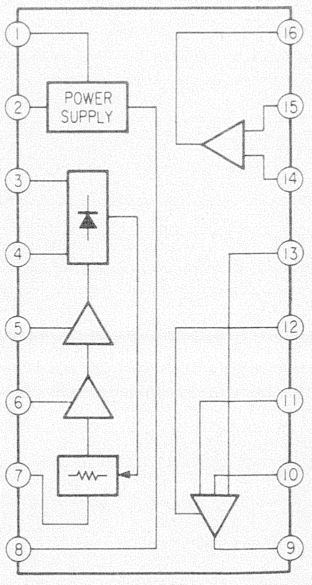
IC302 NJM4558DD



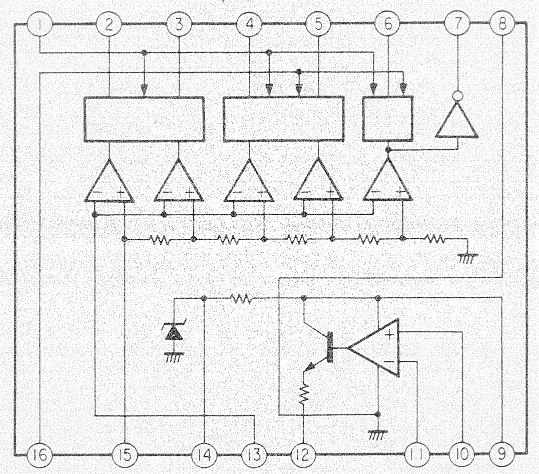
IC701,801 HA1397


POWER AMP
AF AMP
PREAMP
POWER SUPPLY
PROTECTOR CIRCUIT
POWER SUPPLY

IC301,401 CX174


POWER SUPPLY

IC303,403 IR2E01



4-5. MOUNTING DIAGRAM

– Component Side –

Note: (For SCHEMATIC DIAGRAM)

- Components for right channel have same values as for left channel. Reference numbers are coded from 400.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ⊡ : nonflammable resistor.
- ▭ : fusible resistor.
- △ : internal component.
- ▭ : panel designation.
- ➡ : signal path
- ▭ : adjustment for repair.
- ——— : B+ bus.
- – – – : B– bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).

  ( ) : AM

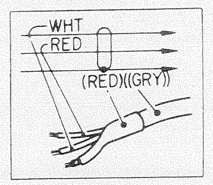
  < > : record

  no mark: FM
- Voltage variations may be noted due to normal production tolerances.
- AC voltage readings are taken with a VTVM.
- Switches

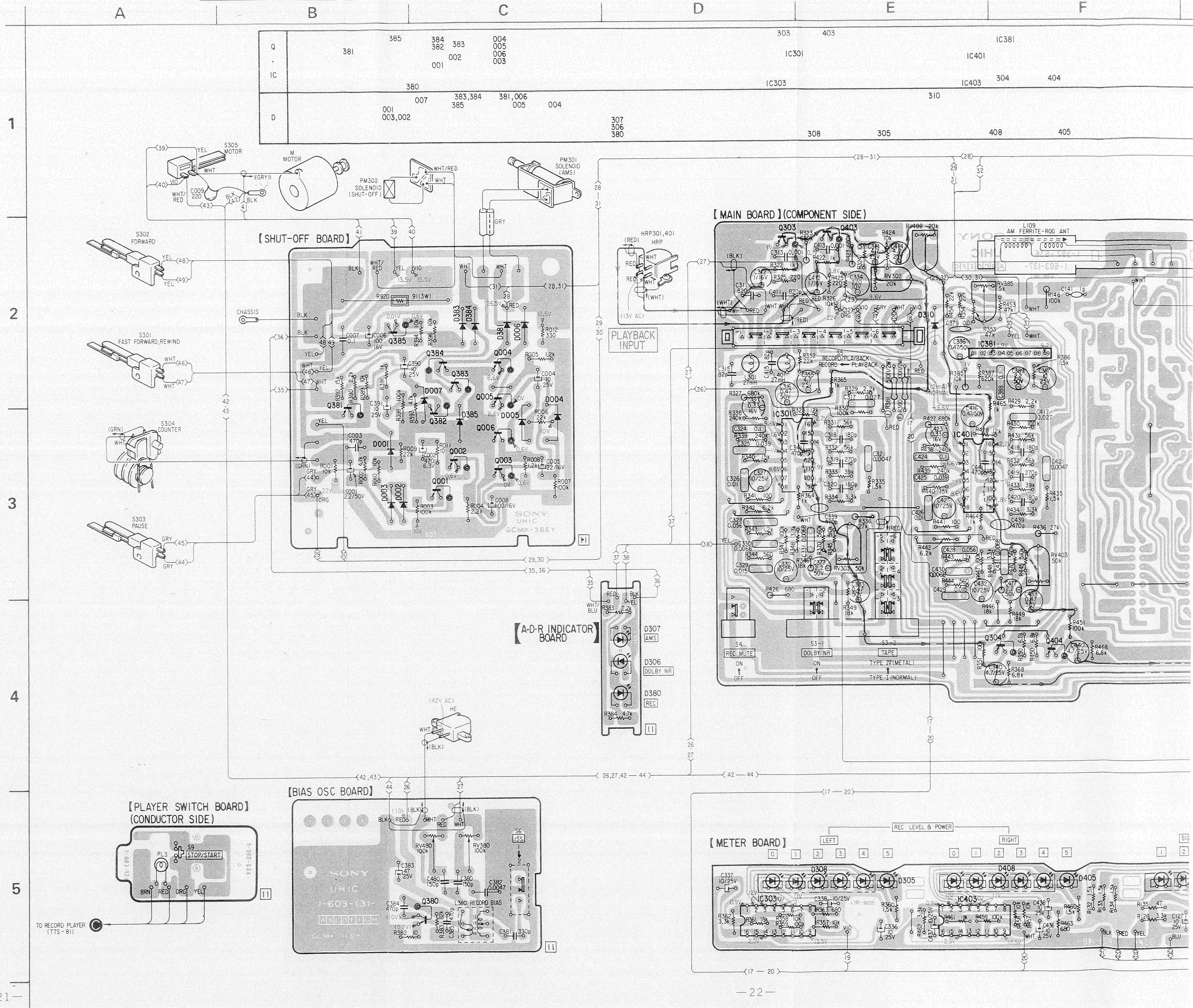
Ref. No.	Switch	Position
S1	BAND SELECT	FM
S2	FUNCTION	TUNER
S3-1	DOLBY NR	OFF
S3-2	TAPE	NORMAL
S4	REC MUTE	OFF
S5	RECORD/PLAYBACK	PLAYBACK
S6	ISS	1
S7	SPEAKERS	A
S8	POWER	OFF
S9	START/STOP	OFF
S11	AM	OFF
S12	FM	OFF
S301	FAST FORWARD/REWIND	OFF
S302	FORWARD	OFF
S303	PAUSE	OFF
S304	TAPE COUNTER	OFF
S305	MOTOR	OFF

Note: (For MOUNTING DIAGRAM)

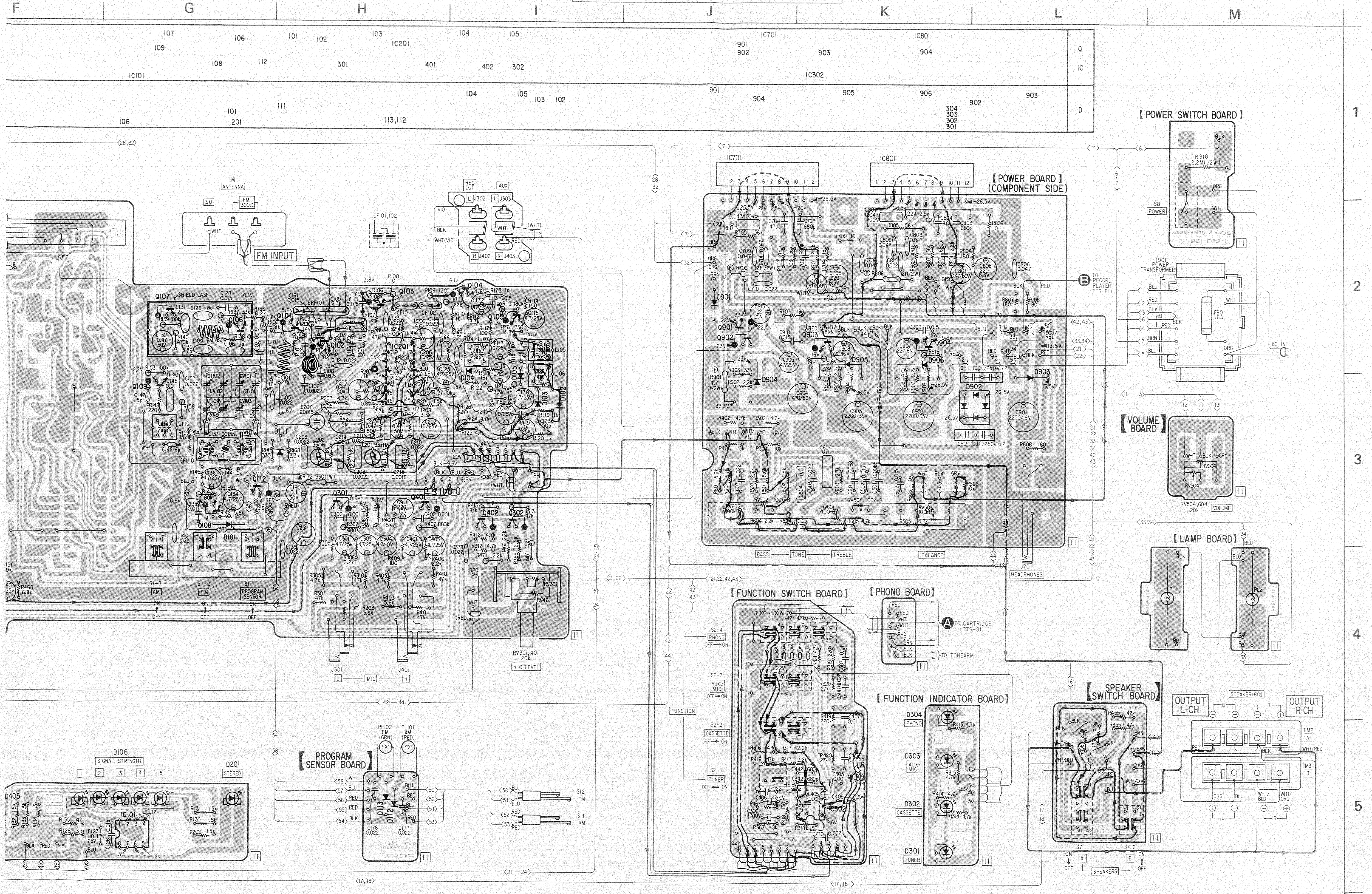
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)((GRY))

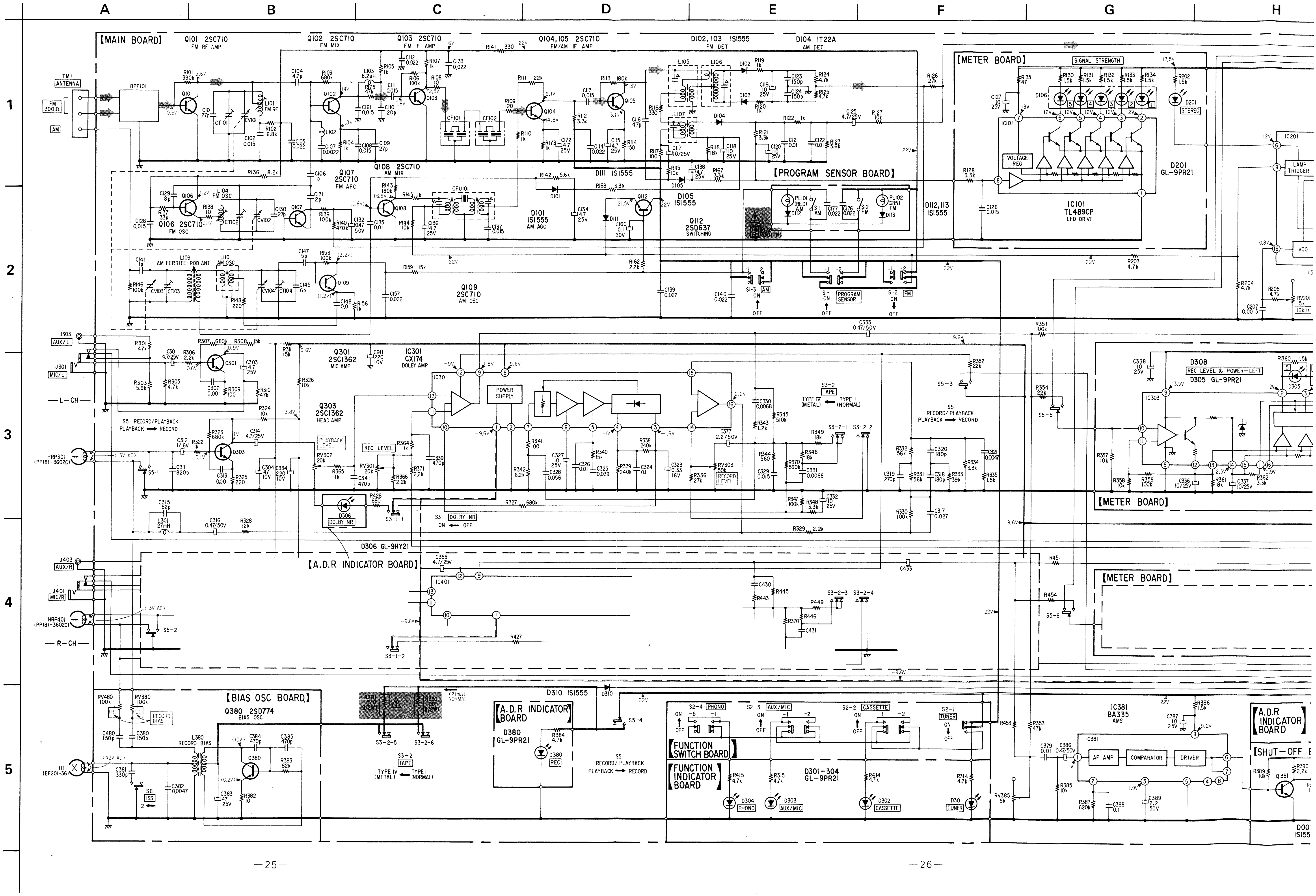
- [ ]← : indicates side identified with part number.
- ▲ : nonflammable resistor.
- Ⓕ : fusible resistor.
- ░ : B + pattern
- ▒ : B – pattern
- ➡ : signal path
- ➡ : L-CH signal path
- ➡ : R-CH signal path
- ⊡ : nonflammable resistor.
- ▭ : fusible resistor.
- △ : internal component.

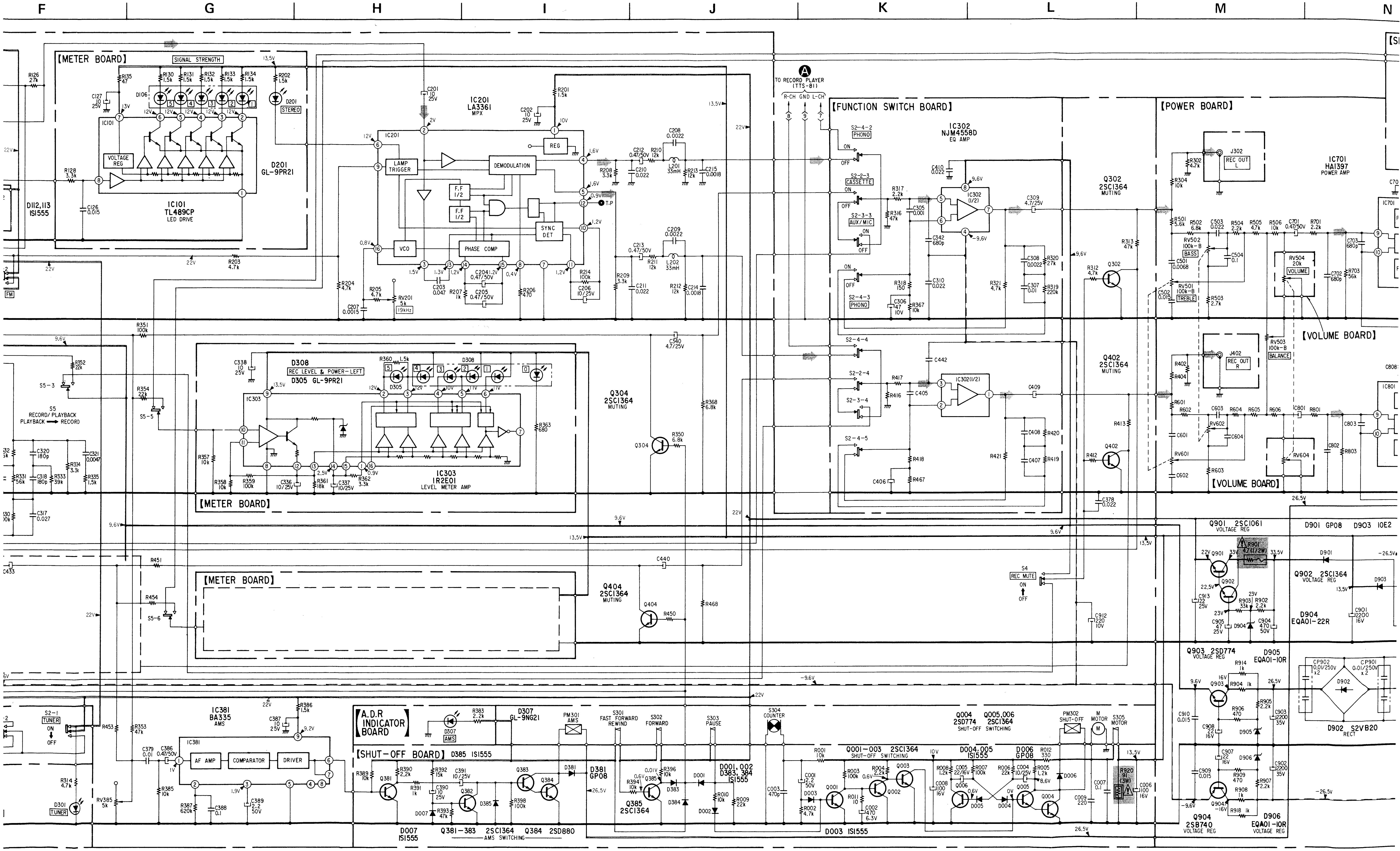

A
B
C
D
E
F
1
2
3
4
5
Q
IC
D
S305 MOTOR
M MOTOR
PM302 SOLENOID (SHUT-OFF)
PM301 SOLENOID (AMS)
S302 FORWARD
S301 FAST FORWARD,REWIND
S304 COUNTER
S303 PAUSE
CHASSIS
[SHUT-OFF BOARD]
SONY UHIC GCMK-36EY
HRP301,401 HRP
PLAYBACK INPUT
[MAIN BOARD] (COMPONENT SIDE)
L109 AM FERRITE-ROD ANT
1-603-137-
[A·D·R INDICATOR BOARD]
D307 AMS
D306 DOLBY NR
D380 REC
HE (42V AC)
S4 REC MUTE ON OFF
S3-1 DOLBY NR ON OFF
S3-2 TAPE TYPE II(METAL) TYPE I(NORMAL)
[PLAYER SWITCH BOARD] (CONDUCTOR SIDE)
S9 STOP/START
PL3
TO RECORD PLAYER (TTS-81)
[BIAS OSC BOARD]
SONY UHIC 1-603-131-
S6 ISS
RECORD BIAS
[METER BOARD]
REC LEVEL & POWER
LEFT
RIGHT
D308
D305
D408
D405
IC303
IC403

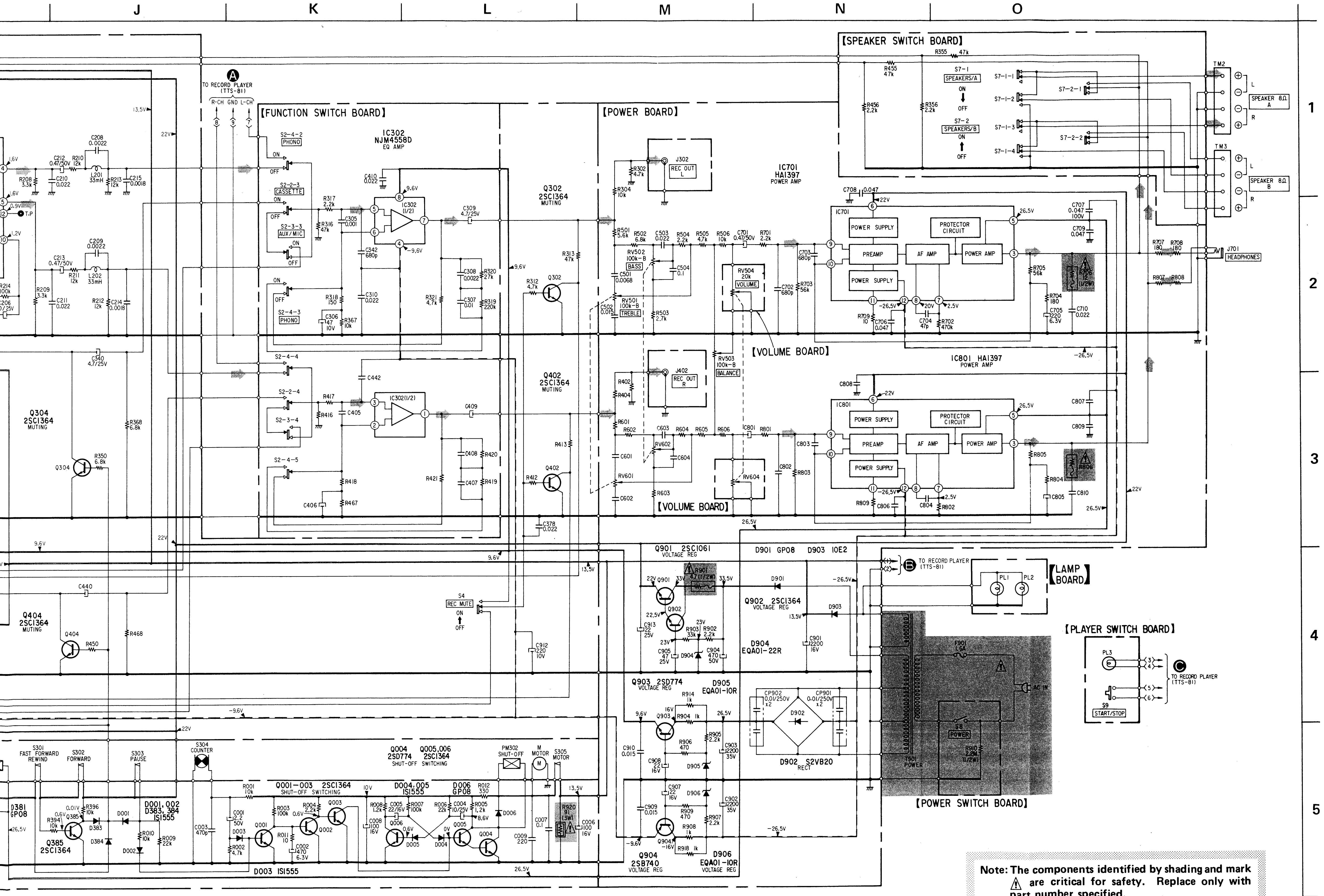
HMK-414 HMK-414


F
G
H
I
J
K
L
M
1
2
3
4
5
Q
IC
D
TM1 ANTENNA
AM
FM 300Ω
FM INPUT
CF101,102
REC OUT
AUX
J302
J303
J402
J403
SHIELD CASE
Q107
Q106
Q101
Q102
Q103
Q104
Q105
Q109
Q112
Q108
D101
D111
IC201
S1-3 AM
S1-2 FM
S1-1 PROGRAM SENSOR
ON OFF
Q301
Q401
Q402
Q302
J301
J401
MIC
L
R
RV301,401 20k
REC LEVEL
D106
SIGNAL STRENGTH
D201
STEREO
IC101
【PROGRAM SENSOR BOARD】
PL102 FM (GRN)
PL101 AM (RED)
S12 FM
S11 AM
IC701
IC801
【POWER BOARD】 (COMPONENT SIDE)
Q901
Q902
Q903
Q904
D901
D902
D903
D904
D905
D906
C903 2200/35V
C902 2200/35V
C901 2200/16V
C904 470/50V
BASS
TONE
TREBLE
BALANCE
J701
HEADPHONES
TO RECORD PLAYER (TTS-81)
【POWER SWITCH BOARD】
R910 2.2M(1/2W)
S8 POWER
T901 POWER TRANSFORMER
F901 1.6A
AC IN
【VOLUME BOARD】
RV504,604 20k
VOLUME
【LAMP BOARD】
PL1
PL2
【FUNCTION SWITCH BOARD】
S2-4 PHONO
S2-3 AUX/MIC
S2-2 CASSETTE
S2-1 TUNER
FUNCTION
OFF → ON
IC302
【PHONO BOARD】
TO CARTRIDGE (TTS-81)
TO TONEARM
【FUNCTION INDICATOR BOARD】
D304 PHONO
D303 AUX/MIC
D302 CASSETTE
D301 TUNER
【SPEAKER SWITCH BOARD】
OUTPUT L-CH
OUTPUT R-CH
SPEAKER(8Ω)
TM2 A
TM3 B
S7-1
S7-2
SPEAKERS
ON
OFF

4-6. SCHEMATIC DIAGRAM


A
B
C
D
E
F
G
H
1
2
3
4
5
[MAIN BOARD]
Q101 2SC710 FM RF AMP
Q102 2SC710 FM MIX
Q103 2SC710 FM IF AMP
Q104,105 2SC710 FM/AM IF AMP
D102,103 1S1555 FM DET
D104 1T22A AM DET
TM1 ANTENNA
FM 300Ω
AM
BPF101
CF101
CF102
CFU101
Q106 2SC710 FM OSC
Q107 2SC710 FM AFC
Q108 2SC710 AM MIX
Q109 2SC710 AM OSC
L109 AM FERRITE-ROD ANT
L110 AM OSC
D101 1S1555 AM AGC
D105 1S1555
D111 1S1555
Q112 2SD637 SWITCHING
[PROGRAM SENSOR BOARD]
PL101 (RED) AM
PL102 (GRN) FM
D112,113 1S1555
S1-3 AM
S1-1 PROGRAM SENSOR
S1-2 FM
ON
OFF
[METER BOARD]
SIGNAL STRENGTH
D106
D201 STEREO
D201 GL-9PR21
IC101 TL489CP LED DRIVE
VOLTAGE REG
IC201
LAMP TRIGGER
VCO
19kHz
J303 AUX/L
J301 MIC/L
— L-CH —
HRP301 (PP181-3602C)
Q301 2SC1362 MIC AMP
IC301 CX174 DOLBY AMP
POWER SUPPLY
Q303 2SC1362 HEAD AMP
PLAYBACK LEVEL
REC LEVEL
RECORD LEVEL
S5 RECORD/PLAYBACK PLAYBACK ⟶ RECORD
S3-2 TAPE TYPE IV (METAL) ⟵ TYPE I (NORMAL)
S3 DOLBY NR ON ⟵ OFF
D306 DOLBY NR
D306 GL-9HY21
D308 REC LEVEL & POWER-LEFT
D305 GL-9PR21
IC303
[A.D.R INDICATOR BOARD]
IC401
J403 AUX/R
J401 MIC/R
HRP401 (PP181-3602C)
— R-CH —
[BIAS OSC BOARD]
Q380 2SD774 BIAS OSC
RV480 100k
RV380 100k
RECORD BIAS
L380 RECORD BIAS
HE (EF201-36)
S6 1SS
D310 1S1555
[A.D.R INDICATOR BOARD]
D380 GL-9PR21
D380 REC
S2-4 PHONO
S2-3 AUX/MIC
S2-2 CASSETTE
S2-1 TUNER
[FUNCTION SWITCH BOARD]
[FUNCTION INDICATOR BOARD]
D301-304 GL-9PR21
D304 PHONO
D303 AUX/MIC
D302 CASSETTE
D301 TUNER
IC381 BA335 AMS
AF AMP
COMPARATOR
DRIVER
[A.D.R INDICATOR BOARD]
[SHUT-OFF
Q381
D007 1S155


F
G
H
I
J
K
L
M
N
[METER BOARD]
SIGNAL STRENGTH
IC101
TL489CP
LED DRIVE
VOLTAGE REG
D201
GL-9PR21
STEREO
D112,113
1S1555
IC201
LA3361
MPX
LAMP TRIGGER
DEMODULATION
REG
F.F 1/2
SYNC DET
VCO
PHASE COMP
19kHz
T.P
A
TO RECORD PLAYER (TTS-81)
R-CH GND L-CH
[FUNCTION SWITCH BOARD]
S2-4-2 PHONO
S2-2-3 CASSETTE
S2-3-3 AUX/MIC
S2-4-3 PHONO
IC302
NJM4558D
EQ AMP
IC302(1/2)
Q302
2SC1364
MUTING
Q402
2SC1364
MUTING
[POWER BOARD]
J302 REC OUT L
J402 REC OUT R
IC701
HA1397
POWER AMP
RV502 BASS
RV501 TREBLE
RV504 VOLUME
RV503 BALANCE
[VOLUME BOARD]
S5
RECORD/ PLAYBACK
PLAYBACK ⟶ RECORD
S5-3
S5-5
S5-6
D308
REC LEVEL & POWER-LEFT
D305 GL-9PR21
IC303
1R2E01
LEVEL METER AMP
Q304
2SC1364
MUTING
Q404
2SC1364
MUTING
S4
REC MUTE
ON
OFF
Q901 2SC1061
VOLTAGE REG
R901 47Ω(1/2W)
D901 GP08 D903 10E2
Q902 2SC1364
VOLTAGE REG
D904
EQA01-22R
Q903 2SD774
VOLTAGE REG
D905
EQA01-10R
D902 S2VB20
RECT
Q904
2SB740
VOLTAGE REG
D906
EQA01-10R
VOLTAGE REG
CP902 0.01/250V x2
CP901 0.01/250V x2
S2-1
TUNER
D301 TUNER
RV385 5k
IC381
BA335
AMS
AF AMP
COMPARATOR
DRIVER
A.D.R INDICATOR BOARD
D307
GL-9NG21
AMS
[SHUT-OFF BOARD]
D385 1S1555
PM301 AMS
S301 FAST FORWARD REWIND
S302 FORWARD
S303 PAUSE
S304 COUNTER
D381 GP08
Q385 2SC1364
D001, 002 D383, 384 1S1555
Q004 2SD774
Q005,006 2SC1364
SHUT-OFF SWITCHING
Q001-003 2SC1364
SHUT-OFF SWITCHING
D004,005 1S1555
D006 GP08
PM302 SHUT-OFF
M MOTOR
S305 MOTOR
R920 9.1 (3W)
D007 1S1555
Q381-383 2SC1364 Q384 2SD880
AMS SWITCHING
D003 1S1555

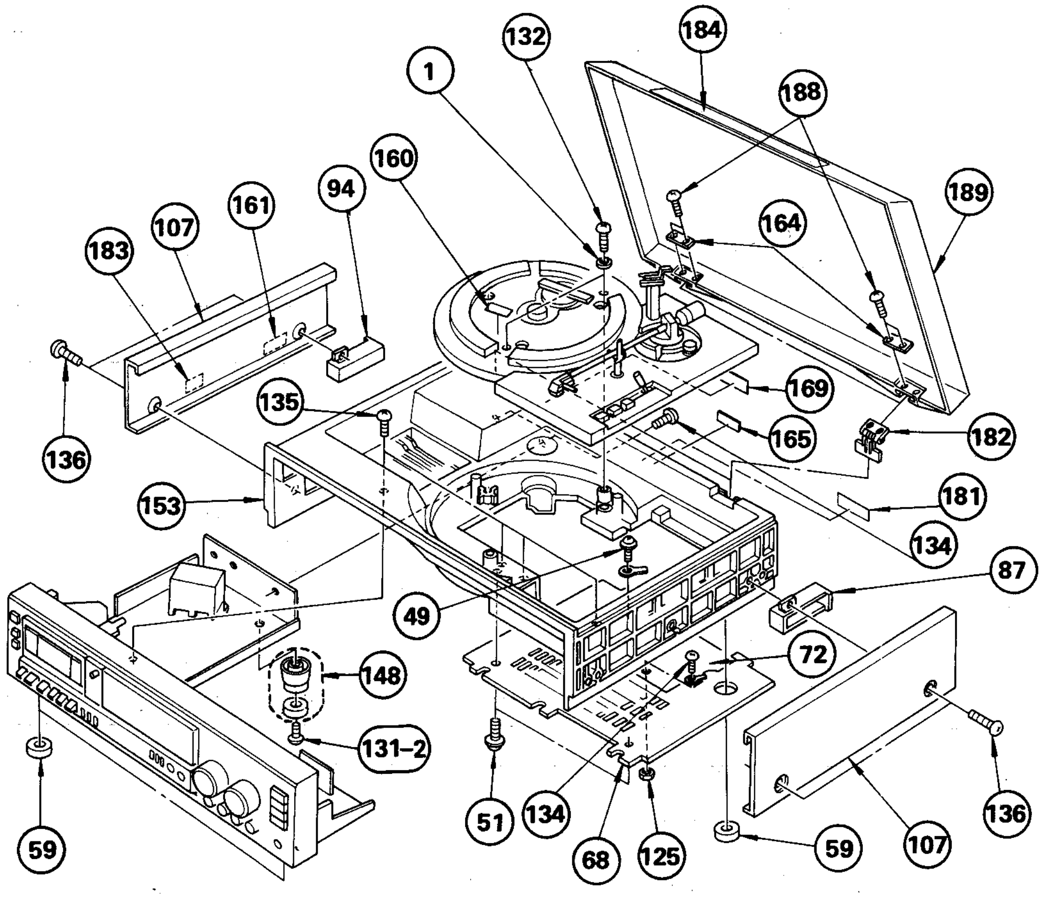

J
K
L
M
N
O
1
2
3
4
5
[SPEAKER SWITCH BOARD]
S7-1 SPEAKERS/A
S7-2 SPEAKERS/B
ON
OFF
TM2
TM3
SPEAKER 8Ω A
SPEAKER 8Ω B
L
R
A
TO RECORD PLAYER (TTS-81)
R-CH GND L-CH
[FUNCTION SWITCH BOARD]
S2-4-2 PHONO
S2-2-3 CASSETTE
S2-3-3 AUX/MIC
S2-4-3 PHONO
IC302 NJM4558D EQ AMP
IC302(1/2)
[POWER BOARD]
Q302 2SC1364 MUTING
Q402 2SC1364 MUTING
Q304 2SC1364 MUTING
Q404 2SC1364 MUTING
J302 REC OUT L
J402 REC OUT R
RV502 100k-B BASS
RV501 100k-B TREBLE
RV504 20k VOLUME
RV503 100k-B BALANCE
[VOLUME BOARD]
IC701 HA1397 POWER AMP
IC801 HA1397 POWER AMP
POWER SUPPLY
PREAMP
AF AMP
POWER AMP
PROTECTOR CIRCUIT
J701 HEADPHONES
S4 REC MUTE
Q901 2SC1061 VOLTAGE REG
Q902 2SC1364 VOLTAGE REG
Q903 2SD774 VOLTAGE REG
Q904 2SB740 VOLTAGE REG
D901 GP08
D903 10E2
D904 EQA01-22R
D905 EQA01-10R
D906 EQA01-10R
D902 S2VB20 RECT
B
TO RECORD PLAYER (TTS-81)
[LAMP BOARD]
PL1
PL2
[PLAYER SWITCH BOARD]
PL3
S9 START/STOP
C
TO RECORD PLAYER (TTS-81)
F901 1.6A
AC IN
S8 POWER
T901 POWER
[POWER SWITCH BOARD]
S301 FAST FORWARD REWIND
S302 FORWARD
S303 PAUSE
S304 COUNTER
Q004 2SD774 SHUT-OFF
Q005,006 2SC1364 SWITCHING
Q001-003 2SC1364 SHUT-OFF SWITCHING
D004,005 1S1555
D006 GP08
D001,002 D383,384 1S1555
D003 1S1555
D381 GP08
Q385 2SC1364
PM302 SHUT-OFF
M MOTOR
S305 MOTOR

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

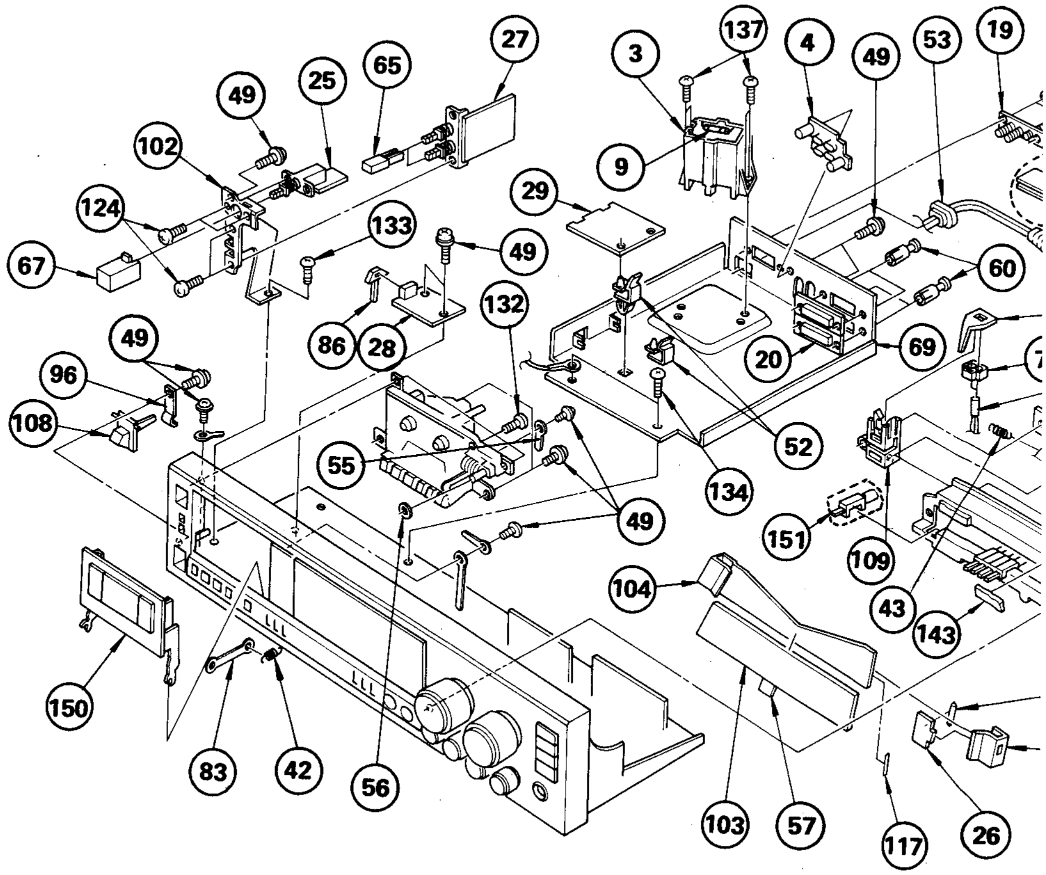
SECTION 5

EXPLODED VIEWS AND PARTS LIST

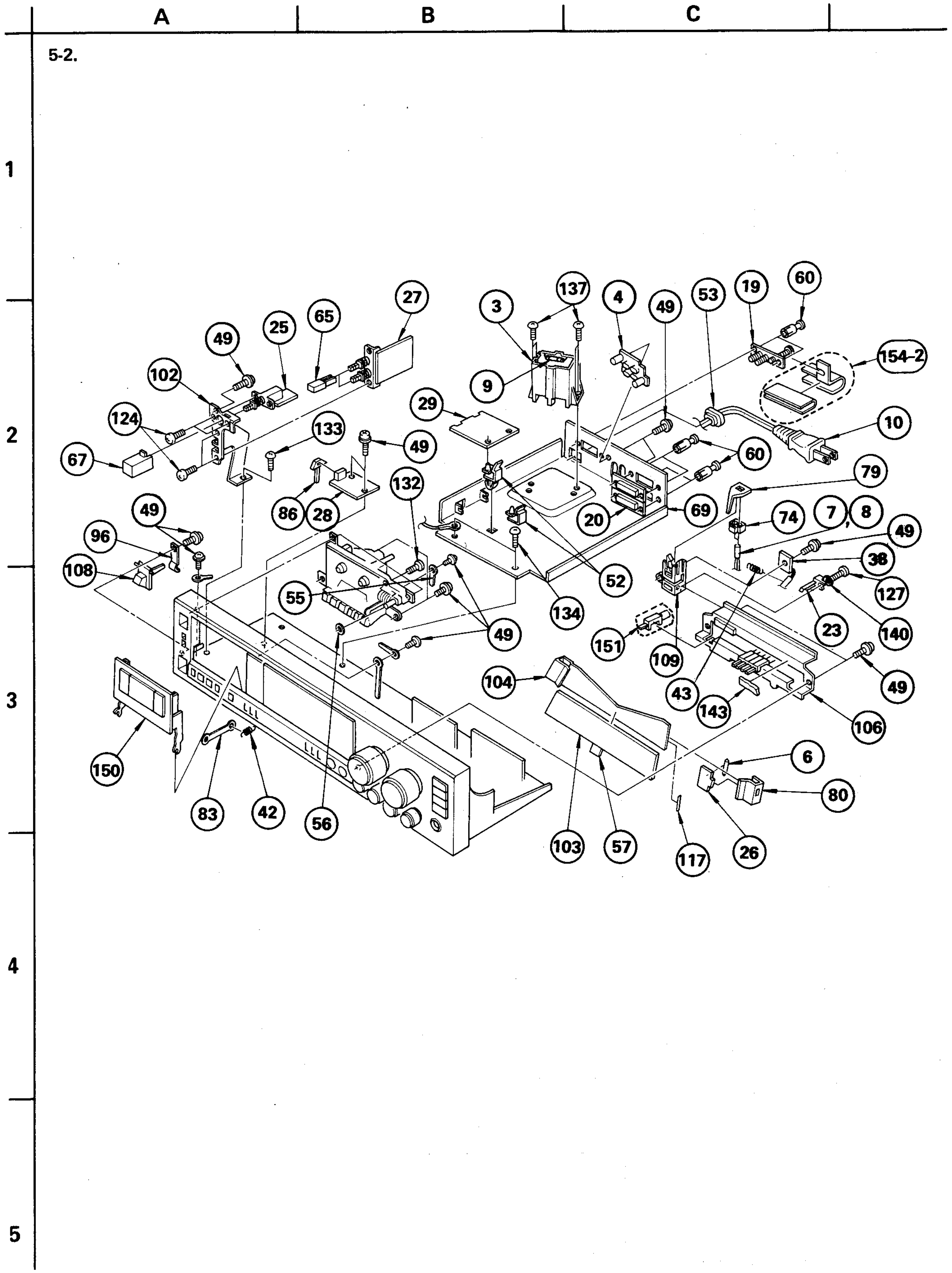
5-1.


A
B
C
1
2
3
4
5
1
132
184
188
189
160
94
161
107
183
164
136
135
169
165
182
153
181
134
87
49
72
148
131-2
51
134
68
125
59
59
107
136

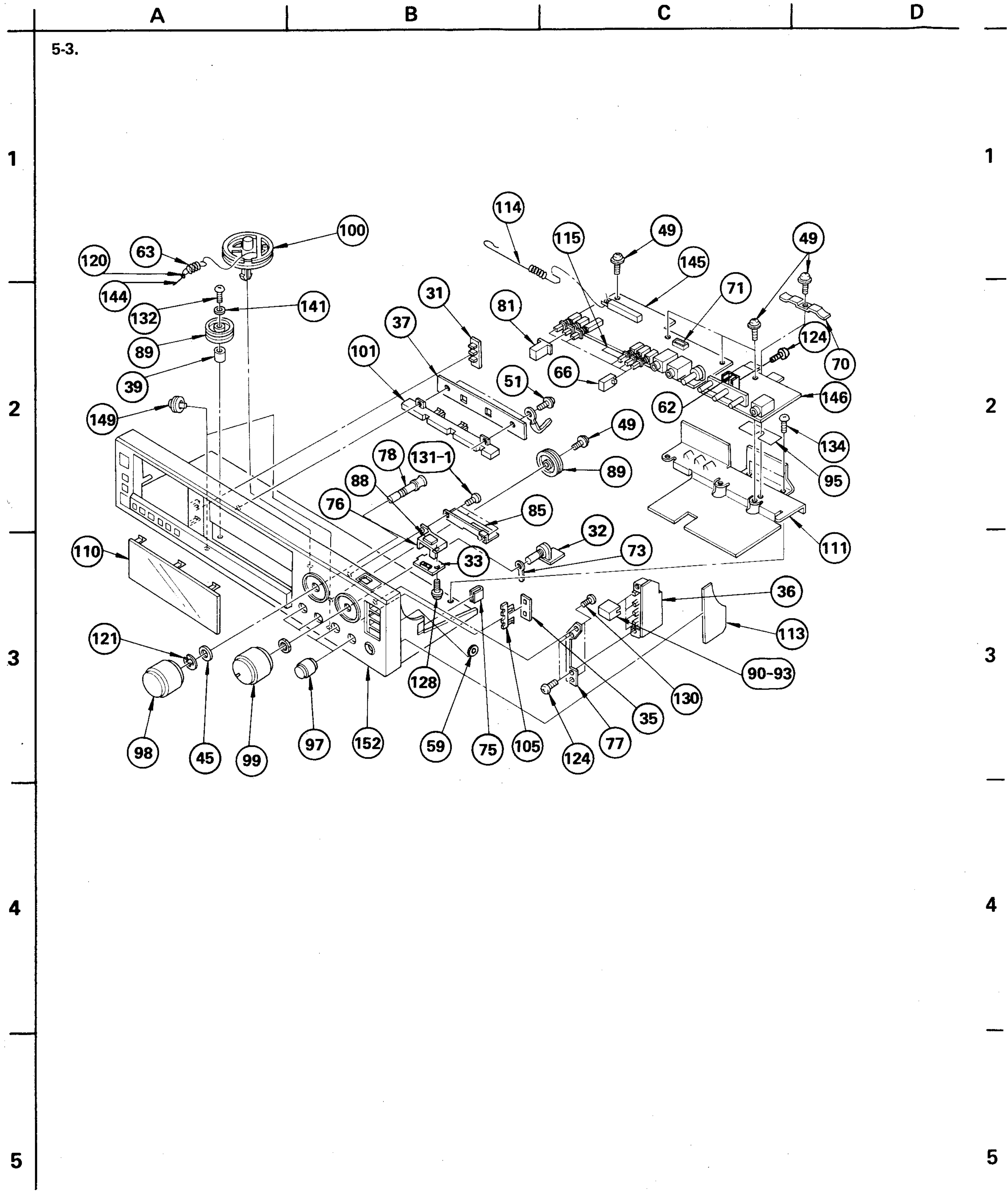
5-2.


A
B
C
1
2
3
4
5
27
3
137
4
49
53
19
49
25
65
9
102
29
124
133
49
60
67
86
28
132
20
69
49
96
108
55
52
134
49
151
109
104
43
143
150
83
42
56
103
57
117
26

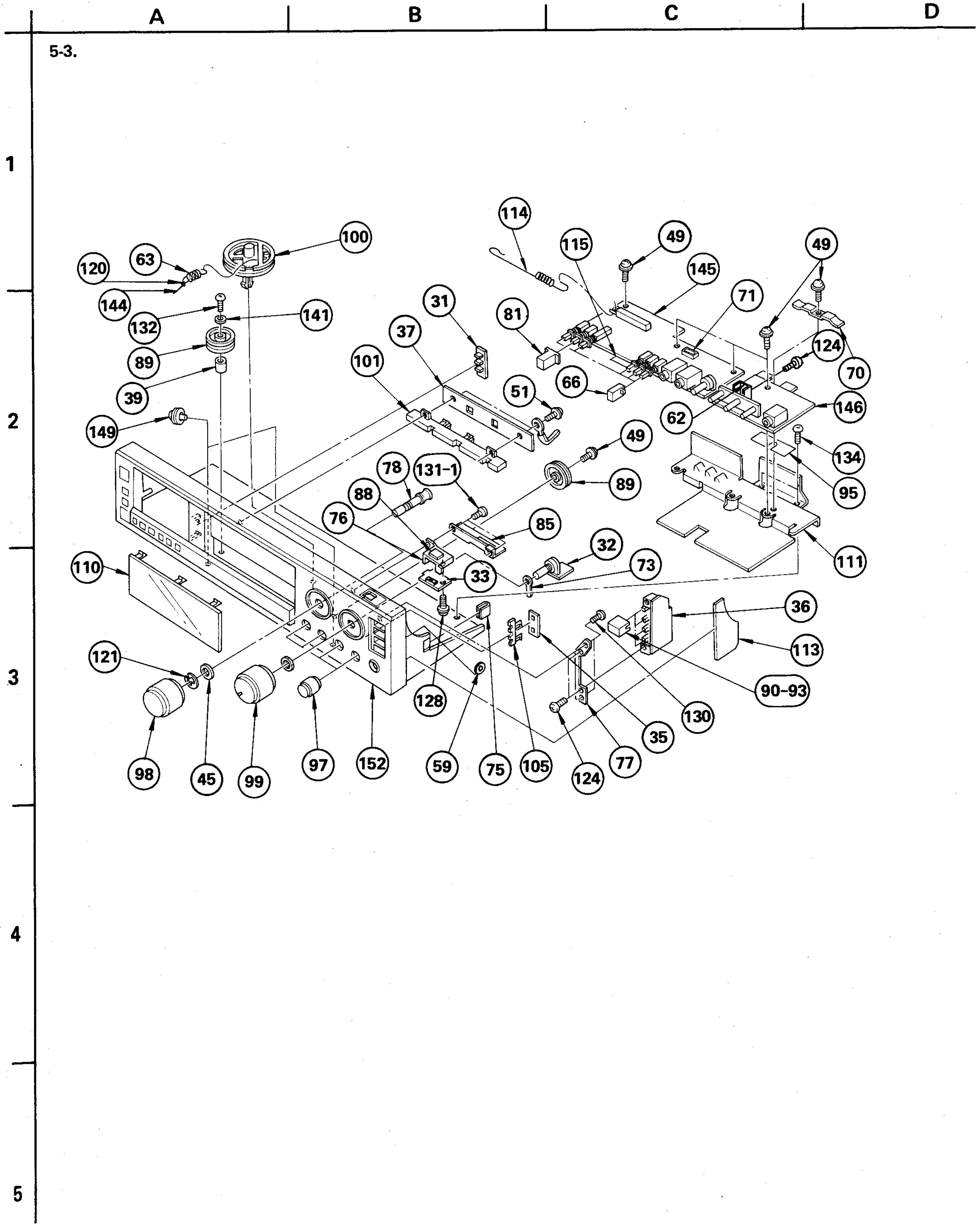
5-2.


A
B
C
154-2

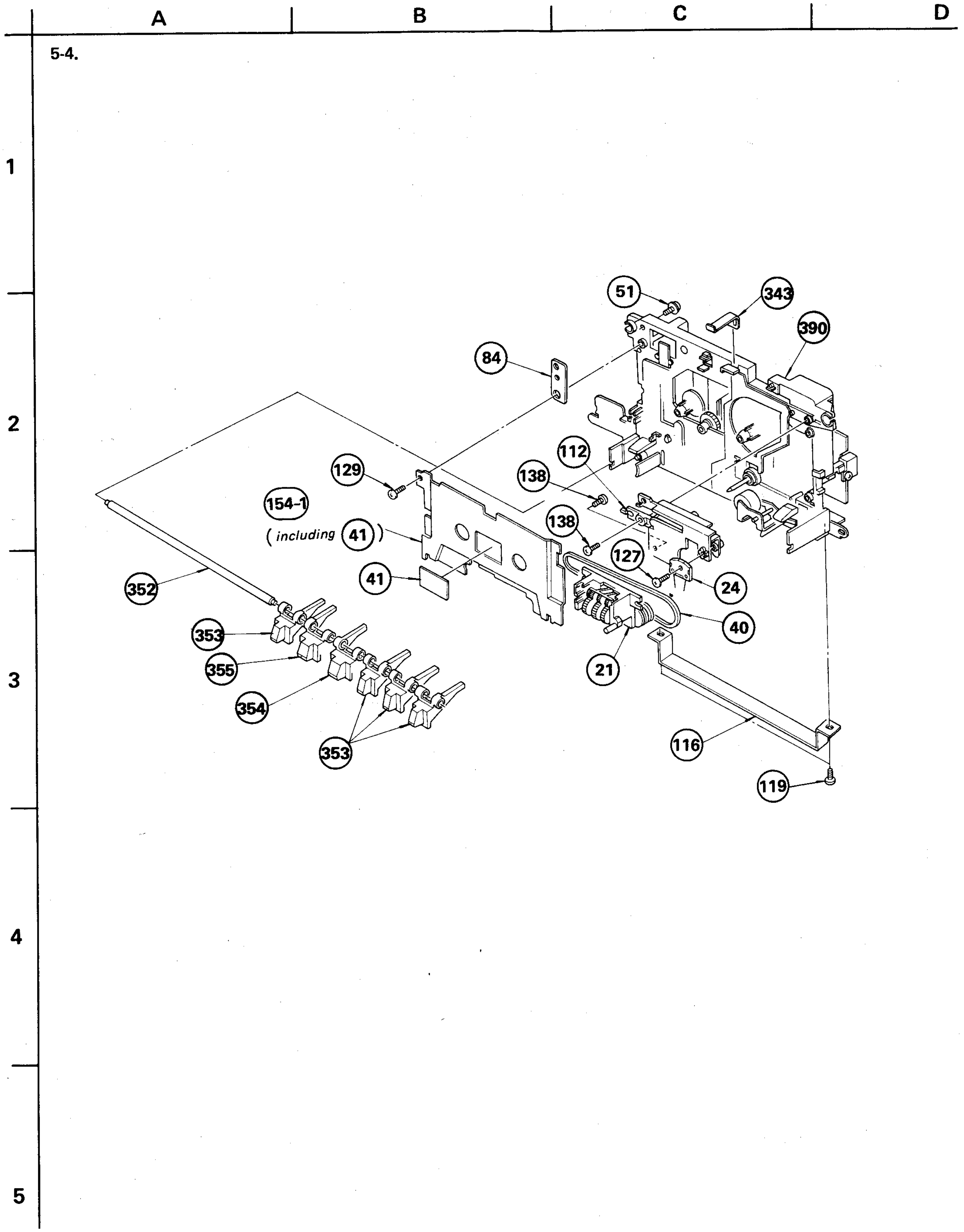
5-3.


A
B
C
D
131-1
90-93

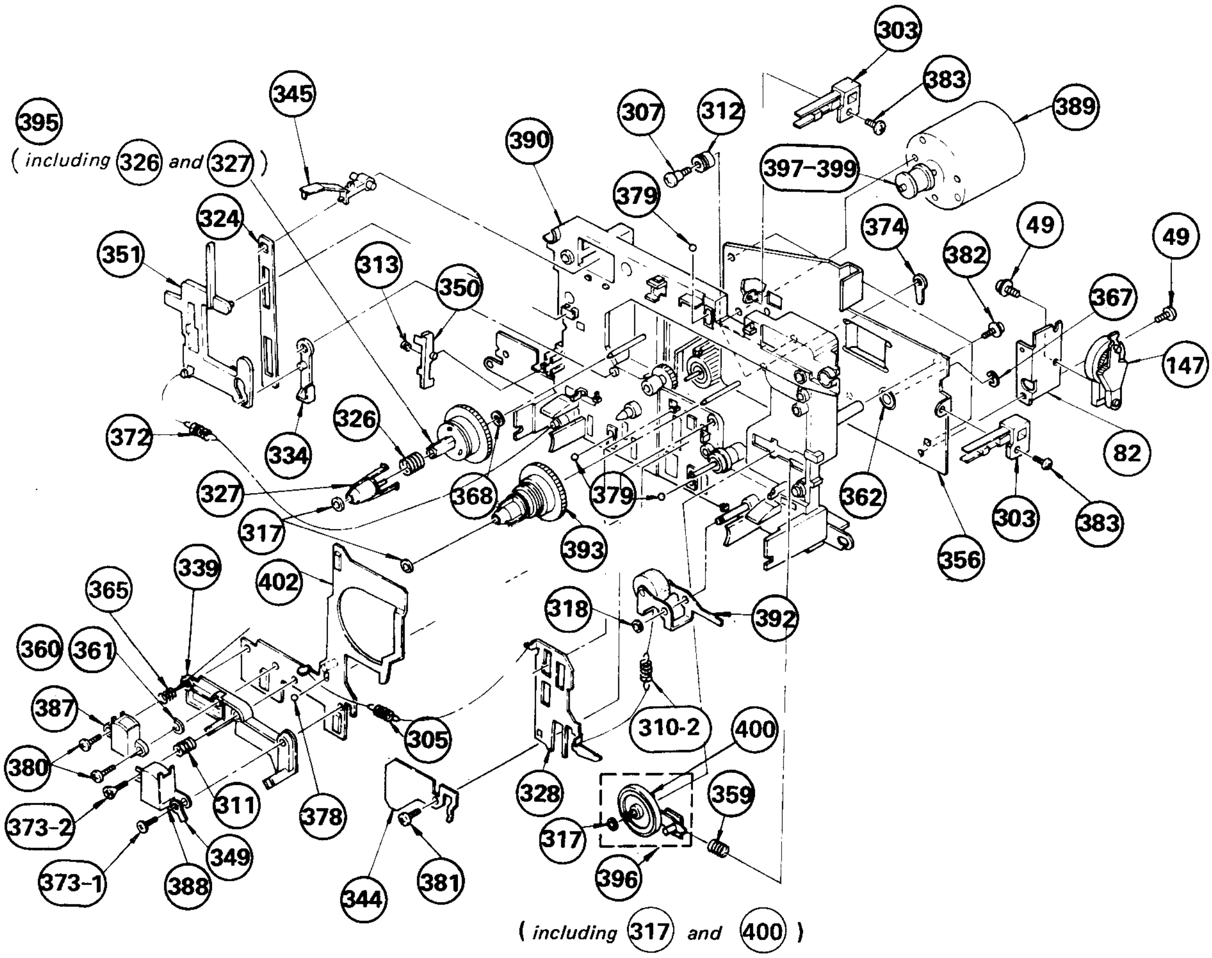
5-3.


A
B
C
D
131-1
90-93

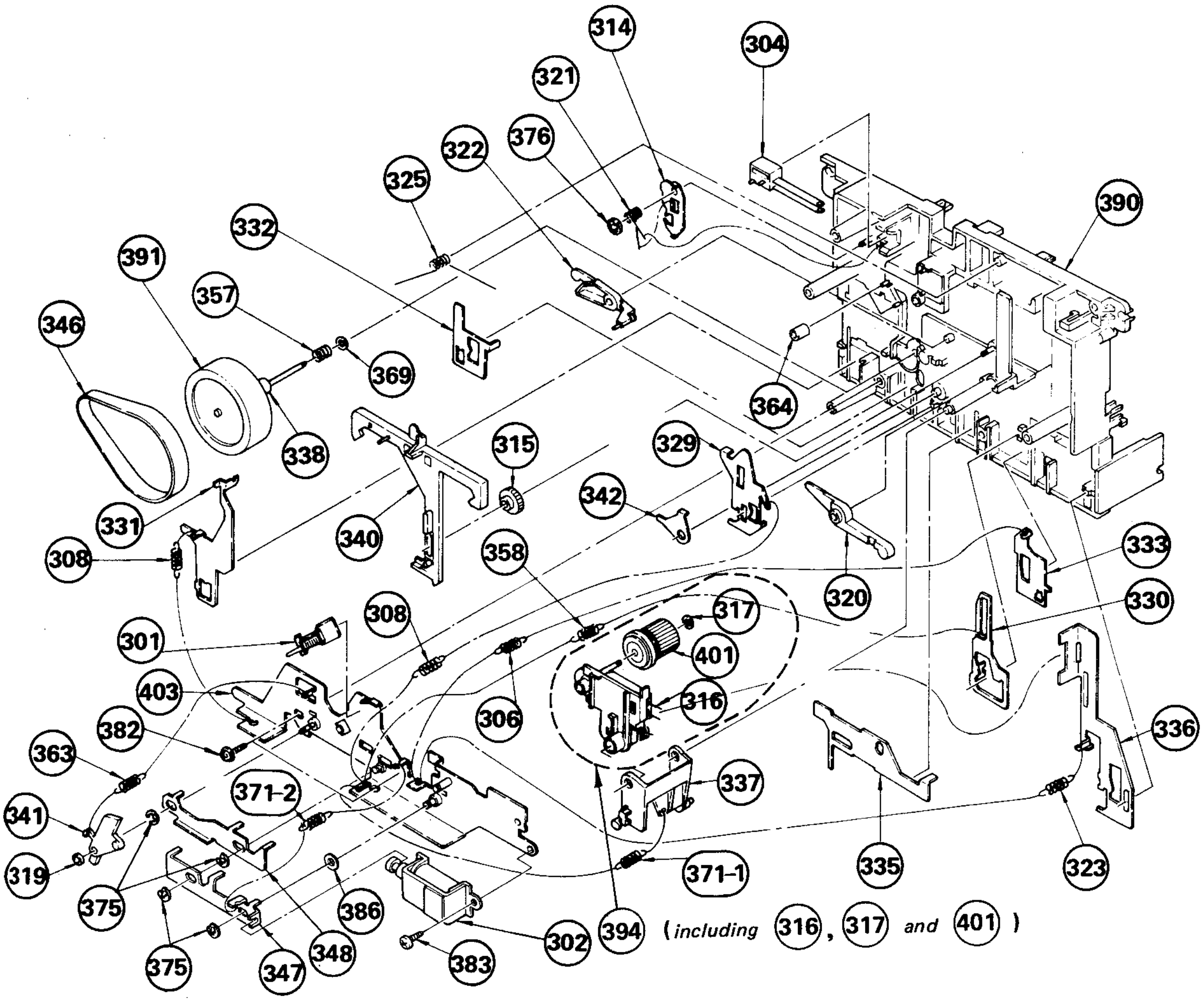
5-4.


A
B
C
D
154-1
(including 41)

5-5.


A
B
C
D
(including 326 and 327)
397–399
310-2
373-2
373-1
(including 317 and 400)

5-6.


A
B
C
D
371-2
371-1
(including 316, 317 and 401)

GENERAL SECTION

No.	Part No.	Description
1	0-056-028-00	WASHER, 14
2	1-101-005-00	CAP, CERAMIC 0.022MF F
3	⚠ 1-446-752-00	TRANSFORMER, POWER
4	1-507-686-00	JACK, PIN 4P
5	♠:1-508-811-00	BASE POST (14MM) 4P
6	1-518-323-00	LAMP, PILOT
7	1-518-424-00	LAMP, PILOT (GREEN)
8	1-518-425-00	LAMP, PILOT (RED)
9	⚠ 1-532-267-XX	FUSE, GLASS TUBE,1.6A
10	⚠ 1-534-986-XX	CORD, POWER
11	♠:1-535-114-00	TERMINAL
12	♠:1-535-115-00	TERMINAL
13	♠:1-535-116-00	TERMINAL
14	♠:1-535-117-00	TERMINAL
15	♠:1-535-118-00	TERMINAL
16	♠:1-535-119-00	TERMINAL
17	♠:1-535-120-00	TERMINAL
18	♠:1-535-139-00	BASE POST 19MM (10MM PITCH) 2P
19	1-536-544-00	TERMINAL, ANTENNA (3P)
20	1-536-566-00	TERMINAL BOARD
21	1-548-545-11	COUNTER, TAPE (WITH ROTARY SW)
22	1-552-804-00	SWITCH, LEAF
23	1-552-891-00	SWITCH, LEAF (S11,12)
24	1-552-913-00	SWITCH, ROTARY
25	♠:1-603-128-00	PC BOARD, POWER SWITCH
26	♠:1-603-129-00	PC BOARD, LAMP
27	♠:1-603-130-00	PC BOARD, SPEAKER SWITCH
28	♠:1-603-131-00	PC BOARD, BIAS
29	♠:1-603-132-00	PC BOARD, SHUT-OFF
30	♠:1-603-133-00	PC BOARD, POWER
31	♠:1-603-134-00	PC BOARD, A.D.R INDICATOR
32	♠:1-603-135-00	PC BOARD, VOLUME
33	♠:1-603-136-00	PC BOARD, PS START SWITCH
34	♠:1-603-137-00	PC BOARD, MAIN
35	♠:1-603-138-00	PC BOARD, FUNCTION INDICATOR
36	♠:1-603-139-00	PC BOARD, EQ. FUNCTION SWITCH
37	♠:1-603-140-00	PC BOARD, METER
38	♠:1-603-250-00	PC BOARD, PROGRAM SENSOR
39	♠:3-002-407-10	COLLAR
40	3-143-124-00	BELT, TAKE UP
41	3-556-221-00	PLATE, ORNAMENTAL
42	3-646-298-00	SPRING
43	3-646-304-00	SPRING
44	3-701-199-02	PIN
45	3-701-444-21	WASHER, 6

GENERAL SECTION

No.	Part No.	Description
46	♠:3-701-946-22	LABEL, FUSE
47	3-703-044-26	LABEL, CAUTION
48	3-703-081-21	LABEL, CAUTION
49	3-703-135-00	SCREW, TAPPING;3X8
50	3-703-136-00	SCREW, TAPPING;3X12
51	3-703-137-00	SCREW, TAPPING;3X10
52	♠:3-703-141-00	HOLDER, PCB
53	3-703-244-00	BUSHING, CORD
54	3-801-216-XX	PULLEY
55	3-811-794-00	HOLDER, WIRE
56	3-831-441-XX	COVER, SWITCH
57	3-831-441-XX	SPACER (B)
58	3-831-441-XX	CUSHION, SPEAKER
59	4-809-913-XX	FOOT, F
60	4-812-134-00	RIVET NYLON, 3.5
61	4-821-121-00	LUG
62	♠:4-821-501-00	HEAT SINK
63	4-844-416-00	SPRING, TENSION
64	4-854-928-00	SPACER
65	4-855-804-41	KNOB, SQUARE
66	4-865-115-11	KNOB (4X10), SQUARE
67	4-865-116-11	KNOB (12X12), SQUARE
68	♠:4-868-444-00	LID, BOTTOM
69	♠:4-868-456-21	CHASSIS
70	♠:4-868-505-00	RETAINER, IC
71	♠:4-870-416-00	PLATE, SHIELD (A)
72	♠:4-870-417-00	PLATE, SHIELD (B)
73	4-871-614-00	PLATE, GROUND
74	4-872-004-00	HOLDER, LAMP
75	♠:4-872-005-00	BRACKET, JOINT
76	4-872-007-00	HOLDER, SWITCH
77	♠:4-872-015-00	BRACKET, F SWITCH
78	4-872-017-00	SHAFT, TUNING
79	4-872-018-00	POINTER
80	♠:4-872-019-00	HOLDER, LAMP
81	4-872-021-00	KNOB, SQUARE
82	♠:4-872-022-00	BRACKET, SE
83	♠:4-872-023-00	LEVER, SE
84	♠:4-872-024-00	BRACKET, CASSETTE
85	♠:4-872-025-00	BRACKET, CABINET
86	4-872-026-00	KNOB, ISS
87	4-872-027-00	ESCUTCHEON (R), SIDE PLATE
88	4-872-030-00	BUTTON, START STOP
89	4-872-031-00	PULLEY, STEP
90	4-872-032-01	BUTTON, FUNCTION (PHONO)

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part mumbers.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

GENERAL SECTION

No.	Part No.	Description
91	4-872-032-11	BUTTON, FUNCTION (TUNER)
92	4-872-032-21	BUTTON, FUNCTION (CASSETTE)
93	4-872-032-31	BUTTON, FUNCTION (AUX/MIC)
94	4-872-037-00	ESCUTCHEON (L), SIDE PLATE
95	4-872-038-00	SHEET, INSULATING
96	4-872-040-00	SPRING
97	4-872-041-00	KNOB
98	4-872-042-00	KNOB, TUNING
99	4-872-043-00	KNOB, CONTROL
100	4-872-044-00	DRUM, DIAL
101	4-872-045-00	HOLDER, LED, SIGNAL
102	♠:4-872-046-00	BRACKET, SWITCH
103	4-872-048-00	SCALE (U), DIAL
104	♠:4-872-049-00	PLATE, LIGHT GUIDE
105	4-872-050-00	HOLDER, LED, FUNCTION
106	♠:4-872-052-00	RAIL, SLIDE
107	4-872-053-00	PLATE, SIDE, CABINET
108	4-872-054-00	BUTTON, EJECT
109	4-872-056-00	TABLE, POINTER
110	4-872-057-00	PLATE, FROSTED
111	♠:4-872-058-00	HEAT SINK
112	4-872-061-00	BRACKET, COUNTER
113	♠:4-872-067-00	PLATE, SHIELD
114	4-872-068-00	SPRING
115	♠:4-872-070-00	PLATE, SHIELD, CT AMPLIFIER
116	♠:4-872-074-00	REINFORCEMENT (A), CASSETTE
117	♠:4-872-075-00	FILTER
118	4-890-173-00	WASHER
119	7-621-773-95	SCREW +B 2.6X6
120	7-623-616-01	EYELET, 2X3
121	7-624-109-01	RETAINING, RING E-5
122	7-624-193-08	STOP RING 3, GRIP
123	7-625-114-61	RIVET, R 3X8
124	7-682-547-09	SCREW +B 3X6
125	7-684-024-01	N 4, TYPE 2
126	7-685-104-21	SCREW +P 2X6 TYPE2 SLIT
127	7-685-105-11	TPG +P 2X8, TYPE 2, NON-SLIT
128	7-685-147-61	SCREW +PTP 3X10
129	7-685-533-14	SCREW +BTP 2.6X6 TYPE2 N-S
130	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
131-1	7-685-647-11	SCREW +BVTP 3X10
131-2	7-685-648-21	SCREW +BVTP 3X12 TYPE2 SLIT
132	7-685-650-11	SCREW +BVTP 3X16 TYPE2 N-S
133	7-685-659-11	SCREW +BVTP 4X8 TYPE2 N-S
134	7-685-660-29	SCREW +BVTP 4X10 TYPE2 SLIT
135	7-685-662-19	SCREW +BVTP 4X14 TYPE2 N-S

GENERAL SECTION

No.	Part No.	Description
136	7-685-665-29	SCREW +BVTP 4X25 TYPE2 SLIT
137	7-685-881-01	SCREW +BVTT 4X8 (S)
138	7-687-234-11	SCREW,TOTSU PTPWH 2.6X8,TYPE2
139	7-687-235-11	SCREW,TOTSU PTPWH 2.6X10,TYPE2
140	7-688-001-01	W 2, SMALL
141	7-688-003-11	W 3, MIDDLE
142	************	
143	9-911-815-02	CUSHION, CABINET
144	9-911-825-42	STRING, 0.5MM WHITE
145	♠:A-4335-137-A	MOUNTED PCB, MAIN
146	♠:A-4388-232-A	MOUNTED PCB, POWER
147	X-3564-004-0	SE ASSY
148	X-4809-908-X	FOOT ASSY, MF
149	X-4864-705-0	PULLEY ASSY
150	X-4872-001-0	HOLDER ASSY, CASSETTE
151	X-4872-002-0	MARKER ASSY
152	X-4872-004-0	PANEL ASSY, BASE
153	X-4872-006-0	CABINET ASSY
154-1	X-4872-007-1	SVX MD COVER
154-2	X-2070-107-2	BRACKET ASSY,ANTENNA

NOTE:

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part mumbers.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ACCESSORY & PACKING MATERIAL

No.	Part. No.	Description
156	3-573-028-00	STICKER, POP
157	3-701-617-00	BAG, POLYETHYLENE
158	3-701-630-00	BAG, POLYETHYLENE
159	3-701-806-00	ADAPTOR, 45, (E)
160	3-703-081-21	LABEL, COUTION
161	3-703-114-01	LABEL, MAIN CAUTION
162	♠:3-703-184-01	LABEL, MATERIAL INDICATING
163	3-783-275-21	MANUAL, INSTRUCTION
164	4-846-049-00	PLATE, REAR
165	4-859-921-00	LABEL, DOLBY
166	4-860-113-00	SPACER
167	4-860-377-00	SHEET, PANEL PROTECTION
168	4-862-043-00	CUSHION, ARM
169	4-868-401-00	SHEET, INSTRUCTION, JACK PLATE
170	4-868-423-00	COLLAR, LOCK
171	4-868-459-00	SPACER, CASSETTE LID
172	4-868-472-00	SPACER, CLUTCH
173	4-868-556-00	SHEET, PROTECTION (MAIN)
174	4-868-558-00	RETAINER, FRAME, TTS
175	4-870-434-00	CUSHION (RIGHT), UPPER
176	4-870-435-00	CUSHION (LEFT), UPPER
177	4-870-436-00	CUSHION (RIGHT), LOWER
178	4-870-437-00	CUSHION (LEFT), LOWER
179	4-870-929-00	SPINDLE, SHORT
180	4-870-965-00	SHEET, TURNTABLE
181	4-872-001-00	LABEL, MODEL NUMBER (USA)
182	4-872-036-00	HINGE, SPRING
183	4-872-069-00	LABEL, ISS
184	4-872-071-00	COVER, DUST (POP)
185	4-872-072-00	INDIVIDUAL CARTON
186	4-872-078-00	CUSHION, SUPPORT
187	7-685-154-11	SCREW +P 3X35 TYPE2 NON-SLIT
188	7-685-882-09	SCREW +BVTT 4X10 (S)
189	X-4872-003-0	COVER ASSY, DUST

NOTE:

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part mumbers.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

MECHANISM SECTION

No.	Part No.	Description
301	1-454-255-00	SOLENOID, PLUNGER
302	1-454-260-00	SOLENOID, PLUNGER
303	1-552-804-00	SWITCH, LEAF
304	1-553-490-00	SWITCH, LEAF
305	2-101-222-00	SPRING, TENSION
306	3-480-160-XX	SPRING, TENSION (35T)
307	3-489-077-11	SCREW, MOTOR
308	3-513-076-XX	SPRING, TENSION
309	3-535-411-00	SPRING, TENSION
310-1	3-538-058-00	SPRING (D)
310-2	3-548-124-00	SPRING
311	3-539-237-00	SPRING (3), COMPRESSION
312	3-553-029-00	CUSHION, MOTOR
313	3-558-606-00	SPRING
314	3-558-612-00	PLATE, LOCK, PAUSE
315	3-558-620-00	GEAR, REWIND
316	3-558-652-00	SPRING
317	3-558-708-01	WASHER, STOPPER
318	3-558-708-11	WASHER, STOPPER
319	3-558-708-21	WASHER, STOPPER
320	3-561-818-00	LEVER, REVIEW
321	3-561-832-00	SPRING
322	3-561-839-00	LEVER, FF
323	3-562-823-00	SPRING, TENSION
324	♠:3-564-302-00	LEVER (B), RECORD PREVENTION
325	3-564-327-00	SPRING
326	3-564-333-01	SPRING, COMPRESSION
327	3-564-335-00	TABLE (B), REEL, S SIDE
328	♠:3-573-401-00	LEVER, RP (SS)
329	♠:3-573-402-00	LEVER, FF BUTTON (SS)
330	3-573-403-00	LEVER, FWD BUTTON (SS)
331	♠:3-573-404-00	LEVER, PAUSE BUTTON (SS)
332	3-573-405-00	LEVER, REC BUTTON (SS)
333	♠:3-573-406-00	LEVER, STOP BUTTON (SS)
334	♠:3-573-411-00	LEVER, STOPPER
335	♠:3-573-413-00	LEVER, REC (BSS)
336	♠:3-573-414-00	LEVER, REW BUTTON (SS)
337	♠:3-573-415-00	LEVER, REC (CSS)
338	♠:3-573-417-00	PULLEY, DRIVING (SS)
339	3-573-418-00	TABLE, BRACKET, HEAD
340	♠:3-573-420-00	BRAKE (SS)
341	3-573-426-00	LEVER (SS), RELEASE, SHUT-OFF
342	♠:3-573-427-00	LEVER, REC (ASS)
343	3-573-435-00	SPRING
344	3-573-436-00	SPRING (SS)
345	3-573-438-00	CLAW, RECORDING SAFETY

MECHANISM SECTION

No.	Part No.	Description
346	3-573-443-00	STRIP, CAPSTAN (SS)
347	♠:3-573-448-00	PLATE, LOCK, AMS
348	♠:3-573-449-00	PLATE (SS), LOCK, BUTTON
349	:3-573-450-00	LUG, GROUND
350	3-573-451-00	LEVER (SS), EJECT LOCK
351	3-573-452-00	LEVER (SS), EJECT
352	3-573-454-00	SHAFT (SS), BUTTON
353	3-573-457-00	BUTTON (P), RERP
354	3-573-458-00	BUTTON (P), FWD
355	3-573-459-00	BUTTON (P), STOP
356	♠:3-573-460-00	RETAINER (SS), THRUST
357	3-573-461-00	SPRING, COMPRESSION
358	3-573-462-00	SPRING, TENSION
359	3-573-464-00	SPRING, COMPRESSION
360	3-573-466-01	SPACER, HEAD (t 0.1)
361	3-573-466-11	SPACER, HEAD (t 0.2)
362	3-573-467-00	RETAINER (D), THRUST
363	3-573-468-00	SPRING, TENSION
364	3-573-469-00	RETAINER, LEAD, SD
365	3-573-470-00	SPRING, COMPRESSION
366	3-573-472-00	SPRING, TENSION
367	♠:3-638-192-00	RING, RETAINING (TYPE CS)
368	3-701-437-01	WASHER
369	3-701-438-21	WASHER
370	3-701-465-00	SCREW, LOCK
371-1	3-701-788-XX	SPRING, TENSION (27T)
371-2	3-701-788-XX	SPRING, TENSION (38T)
372	4-862-673-00	SPRING, TENSION
373-1	7-621-955-45	PWH2X6
373-2	7-621-955-55	PWH2X8
374	7-623-508-01	LUG, 3
375	7-624-118-01	RING, RETAINING E-2.5
376	7-624-190-11	STOP RING 3, TYPE-CS
377	7-627-553-78	SCREW,PRECISION +P 2X7
378	7-671-112-01	STEEL, BALL
379	7-671-113-01	STEAL, BALL 3
380	7-685-784-01	SCREW, PTTWH2X10
381	7-687-134-21	SCREW, TOTSU PTP 2.6X8 TYPE2
382	7-687-234-21	SCREW,TOTSU PTPWH 2.6X8,TYPE2
383	7-687-702-39	SCREW,TOTSU BTT 2.6X5
384	************	
385	7-688-001-01	W 2, SMALL
386	7-688-003-11	W 3, MIDDLE
387	8-825-724-00	HEAD, ERASE EF-201-36
388	8-829-373-30	HEAD, REC/PB (PP181-3602C)
389	8-835-014-01	MOTOR (DNM-2200A)
390	♠:A-2102-001-A	CHASSIS (SS) SUB ASSY, MECH

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CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part mumbers.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS
- MMH : mH, UH : μH

MECHANISM SECTION

No.	Part No.	Description
391	A-2109-007-A	FLYWHEEL ASSY (B)
392	A-2110-005-A	PINCH ROLLER ASSY
393	A-2130-011-A	TABLE ASSY (SS), REEL, T SIDE
394	A-2136-012-A	IDLER COMPLETE ASSY (SS), FR
395	A-3130-016-A	TABLE ASSY, REEL, S SIDE
396	A-3136-014-A	IDLER COMPLETE ASSY, FWD
397	X-3564-301-3	PULLEY (2400), MOTOR(MARK:C)
398	X-3564-301-4	PULLEY (2400), MOTOR(MARK:D)
399	X-3564-301-5	PULLEY (2400), MOTOR(MARK:E)
400	X-3561-801-0	IDLER ASSY, FWD
401	X-3563-902-0	IDLER ASSY, FR (VS2)
402	X-3573-401-0	BASE (SS) ASSY, HEAD
403	♠:X-3573-409-0	RETAINER (C) ASSY, LEVER

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The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref. No.	Part No.	Description
BPF101	1-231-313-00	BANDPASS FILTER
CF101	1-527-381-00	FILTER, CERAMIC
CF102	1-527-381-00	FILTER, CERAMIC
CFU101	1-403-144-00	I.F.T(TRIPLE TUNE)
CP901	1-102-394-00	CERAMIC 250V
CP902	1-102-394-00	CERAMIC 250V
CV101	1-151-377-00	CAP, TUNING, POLYETHYLENE
CV102	1-151-377-00	CAP, TUNING, POLYETHYLENE
CV103	1-151-377-00	CAP, TUNING, POLYETHYLENE
CV104	1-151-377-00	CAP, TUNING, POLYETHYLENE
D001	8-719-815-55	DIODE 1S1555
D002	8-719-815-55	DIODE 1S1555
D003	8-719-815-55	DIODE 1S1555
D004	8-719-815-55	DIODE 1S1555
D005	8-719-815-55	DIODE 1S1555
D006	8-719-911-55	DIODE U05G
D007	8-719-815-55	DIODE 1S1555
D101	8-719-815-55	DIODE 1S1555
D102	8-719-815-55	DIODE 1S1555
D103	8-719-815-55	DIODE 1S1555
D104	8-719-422-21	DIODE 1T22AM
D105	8-719-815-55	DIODE 1S1555
D106	1-806-037-11	DIODE, LUMINOUS (BLOCK TYPE)
D111	8-719-815-55	DIODE 1S1555
D112	8-719-815-55	DIODE 1S1555
D113	8-719-815-55	DIODE 1S1555
D201	8-719-909-21	DIODE GL-9PR21
D301	8-719-909-21	DIODE GL-9PR21
D302	8-719-909-21	DIODE GL-9PR21
D303	8-719-909-21	DIODE GL-9PR21
D304	8-719-909-21	DIODE GL-9PR21
D305	8-719-909-21	DIODE GL-9PR21
D306	8-719-909-23	DIODE GL-9HY21
D307	8-719-909-22	DIODE GL-9NG21
D308	1-806-062-51	DIODE, LUMINOUS (BLOCK)
D310	8-719-815-55	DIODE 1S1555
D380	8-719-909-21	DIODE GL-9PR21
D381	8-719-911-55	DIODE U05G
D383	8-719-815-55	DIODE 1S1555
D384	8-719-815-55	DIODE 1S1555
D385	8-719-815-55	DIODE 1S1555
D405	8-719-909-21	DIODE GL-9PR21
D408	1-806-062-51	DIODE, LUMINOUS (BLOCK)
D901	8-719-911-55	DIODE U05G
D902	8-719-502-20	DIODE S2VB20
D903	8-719-200-02	DIODE 10E-2
D904	8-719-931-22	DIODE EQB01-22R
D905	8-719-931-10	DIODE EQB01-10R
D906	8-719-931-10	DIODE EQB01-10R
IC101	8-759-904-89	IC TL489CP
IC201	8-759-833-61	IC LA3361
IC301	8-759-101-74	IC CX-174
IC302	8-759-145-58	IC UPC4558C
IC303	8-759-920-10	IC IR2E01
IC381	8-759-933-50	IC BA335
IC401	8-759-101-74	IC CX-174
IC403	8-759-920-10	IC IR2E01
IC701	8-759-313-97	IC HA1397
IC801	8-759-313-97	IC HA1397
J301	1-507-684-00	JACK
J401	1-507-684-00	JACK
J701	1-507-690-00	JACK, LARGE TYPE
L101 ♠:	1-420-893-00	COIL, AIR-CORE
L102 ♠:	1-420-840-00	COIL
L103	1-407-189-XX	MICRO INDUCTOR 8.2UH
L104 ♠:	1-420-953-00	COIL, AIR-CORE (OSC)
L105	1-404-204-00	TRANSFORMER, DISCRIMINATOR
L106	1-404-205-00	TRANSFORMER, DISCRIMINATOR
L107	1-404-041-00	COIL,AM DETECTION
L109	1-401-862-00	ANTENNA, FERRITE-ROD (MW)
L110	1-405-685-00	COIL,MW OSC
L201	1-407-964-00	MICRO INDUCTOR 33MMH
L202	1-407-964-00	MICRO INDUCTOR 33MMH
L301	1-408-262-00	MICRO INDUCTOR 27MMH
L380	1-433-227-00	COIL, BIAS OSCILLATOR
L401	1-408-262-00	MICRO INDUCTOR 27MMH
PL3	1-518-423-00	LAMP, PILOT
Q001	8-729-663-47	TRANSISTOR 2SC1364
Q002	8-729-663-47	TRANSISTOR 2SC1364
Q003	8-729-663-47	TRANSISTOR 2SC1364
Q004	8-729-177-42	TRANSISTOR 2SD774
Q005	8-729-663-47	TRANSISTOR 2SC1364
Q006	8-729-663-47	TRANSISTOR 2SC1364
Q101	8-729-671-15	TRANSISTOR 2SC710-15
Q102	8-729-671-15	TRANSISTOR 2SC710-15
Q103	8-729-671-15	TRANSISTOR 2SC710-15
Q104	8-729-671-15	TRANSISTOR 2SC710-15
Q105	8-729-671-15	TRANSISTOR 2SC710-15
Q106	8-729-671-15	TRANSISTOR 2SC710-15
Q107	8-729-671-13	TRANSISTOR 2SC710-12
Q108	8-729-671-15	TRANSISTOR 2SC710-15
Q109	8-729-671-14	TRANSISTOR 2SC710-14

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- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part mumbers.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS
- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref. No.	Part No.	Description
Q112	8-729-463-73	TRANSISTOR 2SD637-R
Q301	8-729-665-47	TRANSISTOR 2SC1362
Q302	8-729-663-47	TRANSISTOR 2SC1364
Q303	8-729-665-47	TRANSISTOR 2SC1362
Q304	8-729-663-47	TRANSISTOR 2SC1364
Q380	8-729-177-42	TRANSISTOR 2SD774
Q381	8-729-663-47	TRANSISTOR 2SC1364
Q382	8-729-663-47	TRANSISTOR 2SC1364
Q383	8-729-663-47	TRANSISTOR 2SC1364
Q384	8-729-288-01	TRANSISTOR 2SD880-0
Q385	8-729-663-47	TRANSISTOR 2SC1364
Q401	8-729-665-47	TRANSISTOR 2SC1362
Q402	8-729-663-47	TRANSISTOR 2SC1364
Q403	8-729-665-47	TRANSISTOR 2SC1362
Q404	8-729-663-47	TRANSISTOR 2SC1364
Q901	8-729-288-01	TRANSISTOR 2SD880-0
Q902	8-729-663-47	TRANSISTOR 2SC1364
Q903	8-729-177-42	TRANSISTOR 2SD774
Q904	8-729-374-02	TRANSISTOR 2SB740
R172	⚠ 1-213-137-00	METAL 330 5% 1W F
R380	⚠ 1-212-982-00	FUSIBLE 100 5% 1/2W F
R381	⚠ 1-212-999-00	FUSIBLE 510 5% 1/2W F
R706	⚠ 1-212-960-00	FUSIBLE 12 5% 1/2W F
R806	⚠ 1-212-960-00	FUSIBLE 12 5% 1/2W F
R901	⚠ 1-212-950-00	FUSIBLE 4.7 5% 1/2W F
R910	⚠ 1-202-723-00	COMPSITION 2.2M 10% 1/2W
R920	⚠ 1-206-533-00	METAL 91 5% 3W
RV201	1-226-235-00	RES, ADJ, CARBON 5K
RV301	1-226-885-00	RES, VAR, CARBON 20K
RV302	1-226-237-00	RES, ADJ, CARBON 20K
RV303	1-226-238-00	RES, ADJ, CARBON 50K
RV380	1-226-239-00	RES, ADJ, CARBON 100K
RV385	1-226-235-00	RES, ADJ, CARBON 5K
RV401	1-226-885-00	RES, VAR, CARBON 20K
RV402	1-226-237-00	RES, ADJ, CARBON 20K
RV403	1-226-238-00	RES, ADJ, CARBON 50K
RV480	1-226-239-00	RES, ADJ, CARBON 100K
RV501	1-226-825-00	RES, VAR, CARBON 100KX3
RV502	1-226-825-00	RES, VAR, CARBON 100KX3
RV503	1-226-825-00	RES, VAR, CARBON 100KX3
RV504	1-226-886-00	RES, VAR, CARBON 20K
RV601	1-226-825-00	RES, VAR, CARBON 100KX3
RV602	1-226-825-00	RES, VAR, CARBON 100KX3
RV604	1-226-886-00	RES, VAR, CARBON 20K
S1	1-553-359-00	SWITCH, PUSH (3 KEY)
S2	1-553-360-00	SWITCH, PUSH (4 KEY)
S3	1-553-357-00	SWITCH, PUSH (2 KEY)
S4	1-553-356-00	SWITCH, PUSH (1 KEY)
S5	1-552-835-00	SWITCH, SLIDE

ELECTRICAL PARTS

Ref. No.	Part No.	Description
S6	1-552-370-00	SWITCH, SLIDE
S7	1-553-358-00	SWITCH, PUSH (2 KEY)
S8	⚠ 1-553-352-00	SWITCH, PUSH (POWER)
S9	1-552-539-00	SWITCH, KEY BOARD

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CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part mumbers.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS
- MMH : mH, UH : μH

ELECTROLYTIC CAPACITORS

RATING →: Use the high voltage rated one.

CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

RATING

CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

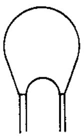
RATING →: Use the high voltage rated one.

CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

	RATING										
CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

TANTALUM CAPACITORS



	RATING			→: Use the high voltage rated one.			
CAP. (µF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS

	RATING					
CAP. (µF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw: – P 3 x 10

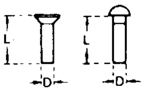
L: Length in mm

D: Diameter in mm

Type of head

Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).



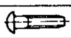
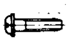
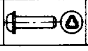
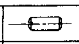
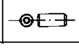
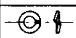
Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft

Reference designation

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

Sony Corporation

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